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Illinois Mining Institute Meeting, p. 37

COAL AGE

The World's Accepted Authority on Coal Mining

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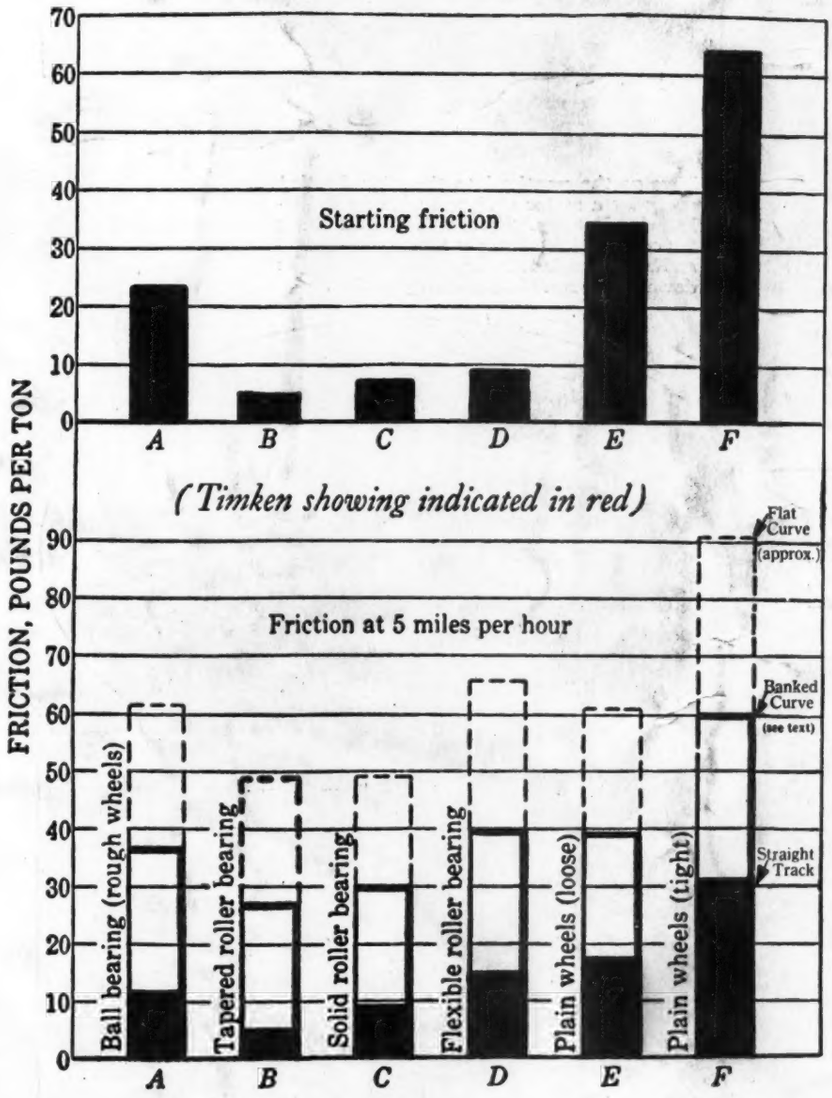

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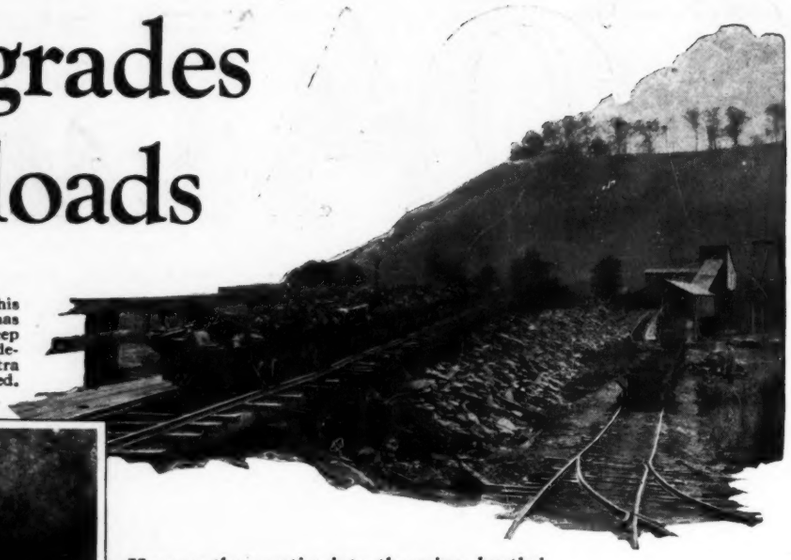

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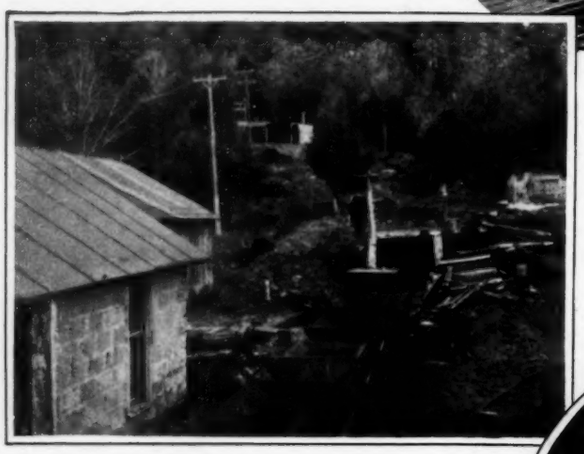

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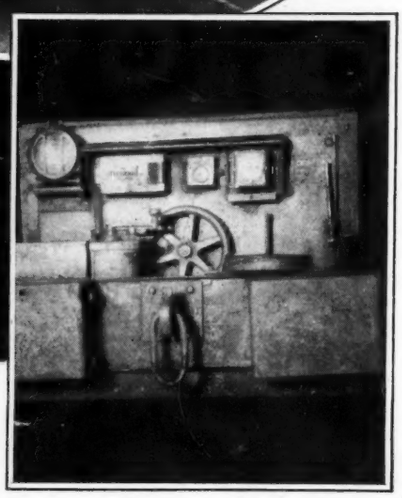

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Devoted to the Operating, Technical and Business Problems of the Coal-Mining Industry

Volume 30 — New York, July 8, 1926 — *Number* 2

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COAL AGE

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With which is consolidated "The Colliery Engineer" and "Mines and Minerals"
R. DAWSON HALL, *Engineering Editor*

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BY STAFF CORRESPONDENT.

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Next Week's Issue

Electrical engineers are ever looking for power economies. J. H. Edwards will have an article reflecting on this subject next week. "Do it with less men" is the sign, and the countersign is "Do it with more power." That being so the power bills will be mounting up, up, up, if the electrical engineer does not find a way to keep them down.

E. J. Gealy has written a discussion of what can be done to keep down anthracite costs and meet shortages of men in the hard-coal region. You will be interested to read what he has to say.

An account of the O'Toole machine for cutting and loading coal and of the mechanisms by which he supports the roof near the face will appear in the same issue. Three strong articles, all of which you will be well-advised not to miss.

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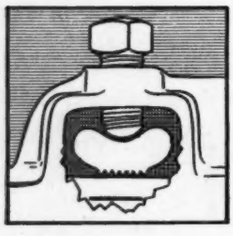

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Devoted to the Operating, Technical and Business Problems of the Coal-Mining Industry

R. DAWSON HALL
Engineering Editor

Volume 30 | NEW YORK, JULY 8, 1926 | Number 2

Should Mines Run More than a Single Shift?

MODERN ECONOMIC conditions tend to compel the introduction of the multiple shift. It is the natural outcome of larger and larger expenditures on machinery, buildings and equipment. When mines were little better than gopher holes and the miner's tools were merely the pick, shovel and breast auger, there was little need for working more than one shift to keep down interest and deterioration charges. Moreover the miner worked long hours, and a certain economy in what charges there were of this kind was thus attained. Today the cost of equipment is so high that it does not pay to install it unless it can operate steadily. For instance, horses are less expensive to operate than motor trucks in New York City wherever the service demanded is at the city docks where almost endless delays are inevitable.

* * *

The metal-mining industry long ago instituted the multiple shift; coal mining in foreign countries including Canada is often thus conducted; printing and electrotyping establishments quite generally have two shifts; the railroads operate night and day. So there are abundant precedents for multiple shifts in the coal industry. The incentive for the steady day-and-night operation of a coal mine is found in the need to reduce interest, deterioration, obsolescence and taxation charges and to spread the inevitable 24-hour charge for ventilation, pumping and inspection over a larger tonnage.

There are important considerations which militate against the multiple shift. The night is now available for the making of repairs, for the maintenance, regrading and retimbering of roadways, for the laying of switches, for the cutting of coal, for the distribution of explosives, props and rails, for rock dusting and sprinkling and for the charging of batteries. Most of the work that is done in the night under present conditions is done at that time because there is minimum interference from passing trips, and important economies, it must be remembered, result from this differentiation of operation between the night and the day.

* * *

Some have contended that there was danger in working the mines 24 hours a day but there seems rather to be a greater assurance of safety attainable with continuous or reasonable continuance of operations. Most of the trouble with the roof comes from the slow progress of extraction and many accidents are caused from an unfortunate reliance at night on examiners who may or may not perform their duties. Explosions quite frequently occur at the beginning of the morning shift because during the night brattices have been broken, doors have been left open, blowers of gas have raised the methane percentage, and these menaces to the safety of the mine have not been discovered and corrected by the examiners who, not being under supervision, are often negligent. Much of the timbering, retimbering and rock removal would be unnecessary if the working faces moved forward more rapidly. The cost of ice removal in the winter likewise would be spread over a larger tonnage.

* * *

Multiple shifting will come first probably in the larger mines where the investment has been considerable, and where much loss will be avoided if the coal is quickly mined and marketed. Where the coal is low and where the percentage of recovery is not high the necessity for night-and-day development to keep ahead of the coal extraction of the day alone may prevent a full double shift being provided. Under such circumstances the mine might load more coal daily than the development work would prepare for recovery, thus making the multiple shift difficult.

The change to triple shift is a consideration for each operator's decision. If he believes it to be profitable and that it can be performed without too much operative and domestic difficulty, he will attempt it. It is not a matter in which the public can well take a hand, not being cognizant of all the conditions involved or of the degree to which multiple shifting of the partial nature indicated has already been adopted.

* * *

However, viewed from the standpoint of interest alone, it appears attractive. Assume that a proper return on capital invested in such a hazardous industry, financially considered, as coal mining is ten per cent and that the investment is $8 per ton of annual production, as is not even now unknown; then the interest charge on a ton of coal is 80c. If this tonnage could be doubled without countervailing disadvantages, this charge could be reduced to 40c. The lowering of costs per ton by decreased depreciation, taxation, obsolescence, ventilation, pumping, excessive load-factor, and examination charges would add to the saving. A double shift would still leave a third period for repairs, switch laying and the distribution of materials. The proposal seems attractive and no operator should dismiss it without consideration especially if he is provided with sufficient housing accommodation.

Its effect on the present overdevelopment of mines is, however, not to be disregarded but with cheaper coal even that would be partially, if not wholly, overcome.

Slipping Into the Discard

NO ONE CAN afford to make weak decisions in the purchase of equipment, to be content to take anything but the best of modern machinery. When the time comes to modernize, the strain will be too great and the cost too high. Everything will need replacing and modernizing at once, and then the choice will be either to accept abandonment or practically rebuild, recognizing that what has been accumulated is worse than useless in any modern and efficient plant.

A superintendent who asks at a fell swoop for permissible mining machines, junction boxes, electric safety lamps, a new fan, new shafts, rock-dust equipment, sectional switches, larger entries, cleaning of airways, self rescuers, breathing apparatus, and gas masks may fail utterly to get any of these things, but if he has carefully provided himself with some of them he may have no difficulty in getting all that is needed to complete his program.

Every false economy brings its loss. It does not pay to be guilty of a parsimony that increases the cost of coal and finally makes betterment almost impossible of accomplishment. The recollection of Mr. Leiter's 2904 mine, as recorded in the Illinois Mining Institute story this week, quickly brings assurance to us that the invention of today is the *sine qua non* of tomorrow. We are not surprised now when we hear of a capacity of 5,000 tons in ten hours, a rotary dump, gateless cars, skip hoists, electric locomotives, 60-lb. rail. They are getting to be quite ordinary and necessary parts of a mine of any size.

When L. Z. Leiter started to construct his celebrated Zeigler mine he ordered that a cornerstone be made and laid, on which would appear the fictitious date. 2904, indicating that he believed the new mine was a thousand years ahead of its time. That stone is there to this day but the mine has been remodeled.

We are shocked to hear that the Zeigler mine had coal punchers and breast machines in 2904. Impossible! We are far ahead of much that was part of Leiter's millennium. True, Leiter led his contemporaries. Had he introduced into his mine the normal outfit of 1904 it would have been entirely out of date by 1914. Yet some are willing to be, and even prefer to be, a little behind the times when laying out a property. They forget where they will be after a few years of progress.

The Eyes of the Foreman

NOT ONLY haulage but all operations should be reported by telephone and recorded by someone near the mine headquarters. The foreman should have a record of where every underground company man is working. Each dayman should ring up the dispatcher as soon as he reaches his destination and should report each important piece of work on its starting and accomplishment, the laying of a switch, the building of a brattice, the cleaning of a road.

He should, perhaps, be allowed to direct his own work to some degree, but he should not be allowed to keep his movements from the record. At night he should fill up a slip showing what he did during the day. The foreman would then know whether what he does justifies his retention on the payroll. The knowledge that his accomplishments had to be recorded would stimulate him to achieve a good record or explain why.

The telephonic and the daily record are as two eyes to the foreman. The former also enables the foreman to reroute the tracklayer, bratticeman or roadman should occasion demand. If he does not know what these men are doing he must call in many directions before he can locate and reroute them.

The foreman himself would do well to keep the dispatcher informed as to his travels, so that he may be reached if necessary by the superintendent or the office. Too many foremen are lost to all the world when they enter the mine.

Mere Coal Production

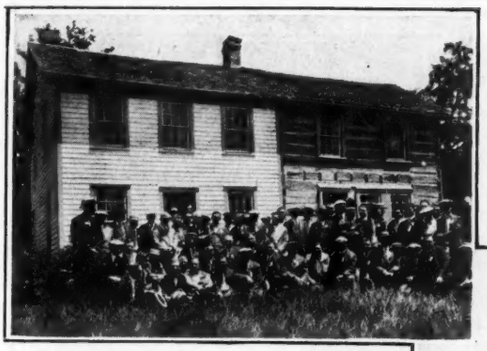
IS THE COAL operator to be a mere producer of a basic material or is he to develop into a manufacturer? The public has never been able to understand that there is anything but extraction in mine operation. It cannot realize that a mine is any more than a hole in the ground. It resents charges for development, haulage, preparation and maintenance with such a simple product.

But as soon as something is manufactured, the public admits that the matter stands on a different footing. It realizes that there are other costs to be met than royalties, mining and loading charges and profits. The bulk of the public is engaged, not in mining but in manufacturing, and the mine owner who is also a manufacturer becomes a member of the majority and that means much. He gets a better hearing. He overcomes a host of prejudices. Will he, therefore, continue to strive to be a mere producer for the manufacturer or become himself a manufacturer? Until he does the latter, he will never be understood.

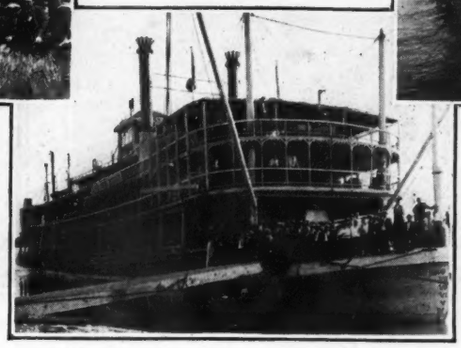
Passing of the Calloused Hand

WHAT HAS BECOME of that character which political spellbinders and other fictionists were wont on occasion to paint in soul-stirring word-pictures, the "horny-handed son of toil"? Much emphasis was used in depicting his calloused hands and his gnarled and weather-beaten arms, exposed to the elements as, with sleeves rolled up, he toiled with pick and shovel. The question is prompted by the spectacle of a gang of men digging the new subway in New York on a June day, with not a sleeve rolled up and all wearing gloves.

As facilities for workmen to bathe and change their clothes at their place of employment have increased, the use of the family bathtub as a coal bin has become rarer. The automobile, too, has broadened the worker's viewpoint—parking space, even a garage to protect employees' cars from the weather, is a not uncommon feature of many plants now. Therefore, little surprise was occasioned when it was announced during the last year that a nine-hole golf course was being laid out for the use of employees on the property of a coal-mining company. Perhaps the gloved shovelers not only play golf but an occasional friendly game of bridge. But imagine a bridge devotee with calloused hands! Perish the thought! Eventually it may be necessary for mine operators, contractors and builders, in order to have satisfied employees, to provide manicuring service.



On Left, Log Cabin Occupied by Joseph Smith, Founder of Mormonism, at Nauvoo, Iowa. This Town Once Had 30,000 Population But Has Now Only 1,100 People



On Right, River Steamer "Cape Girardeau" at Fort Madison Where Dan Carroll in Presence of Medicine Man Was Initiated Into Order of Flying Cows

Above, at Keokuk, Iowa, Hydro-Electric Plant in Rear and Government Lock in Foreground. Dam Backs Water 40 Miles to Burlington, Iowa

Illinois Engineers Travel Up Mississippi and Discuss Their Problems on a River Boat

Zeigler Planned to Be 1,000 Years Ahead of Its Time—Wood-Fiber Plaster for Fire Fighting—Coal Wasted When Cleaned Underground—What to Wash and What to Clean by Picking

By Staff Correspondent

THE ILLINOIS Mining Institute again proved the wisdom of holding its summer meeting in conjunction with a boat trip on the Mississippi River. This year the Institute left St. Louis on June 24 on board the "Cape Girardeau," traveled about 225 miles up-stream to Fort Madison, Iowa, and then doubled back, arriving in St. Louis on June 27. The trip afforded the eighty-seven men who took it an opportunity to become exceedingly well acquainted. Short stops were made at various places of interest, including Keokuk, Iowa, where an inspection of the large hydro-electric plant at that town was made and of Nauvoo, Iowa, where Joseph Smith, the founder of Mormonism, lived for four years.

Three sessions were held each day; one in the morning, another in the afternoon and the third in the evening. The Friday morning session was opened by a few preliminary remarks from E. G. Lewis, president, who, as chairman, introduced C. C. Whittier, consulting engineer of the R. W. Hunt Co., of Chicago. Mr. Whittier laid out the Zeigler No. 1 mine for the Leiter interests in 1904. At this mine were introduced the first skips and rotary dump to be installed in Illinois.

Six or eight years before this mine was opened Levi Zeigler Leiter, father of the present Joseph Leiter, financed some experiments which were intended to determine the suitability of southern Illinois coals for the manufacture of metallurgical coke. His intention was to install coke ovens at a mechanically operated mine. However, neither of these two phases of the plan was ever carried out, though one attempt was made to use a Hamilton loader. Diamond-drill holes proved the value of the No. 6 seam in the vicinity of the town which is now known as Zeigler.

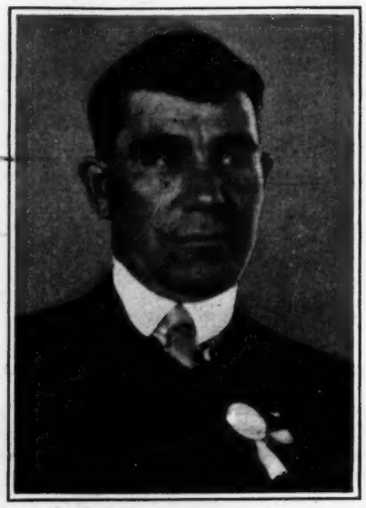
To the No. 1 mine was assigned 7,600 acres of No. 6 seam coal. The late Mr. Leiter sought to construct a plant that would be far ahead of its time. So enthusiastic was he at the beginning that he caused to be cut in the cornerstone of the engine house the date 2904 as typifying that the plant to be constructed would be 1,000 years ahead of the practice of that time.

Two shafts were sunk to the No. 6 seam, which lies at a depth of about 400 ft. Open-excavating and hand-drilling methods were adopted in this work. The shafts were timbered with square sets. Incidentally all timbers and lumber were cut in a saw mill which was erected on the job. The headframe over the main shaft was fabricated of steel and stands 125 ft. high. The great height was thought necessary at that time to accommodate large bins and a number of Bradford breakers.

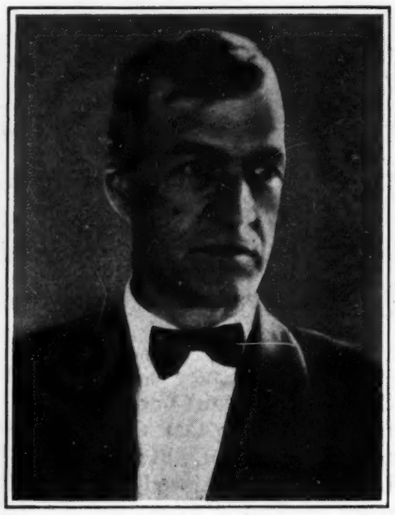
PACEMAKER FOR ITS DAY

The plant was designed for a capacity of 5,000 tons in eight hours. Mr. Whittier said that the work was difficult and mistakes were made because the major features were original and on a large scale for that day. The skip-loading gates were hand-operated; the rotary dump was designed to dump, discharge four cars at one time. These cars were built without end gates. Both electric and compressed-air power were generated at the mine for use underground. The tracks were laid with 60-lb. rails, and electric locomotives were provided. Air-operated punchers and breast ma-

George Deike



E. G. Lewis



Dr. Gilbert Cady

chines likewise were installed. Many of the present practices at large shaft operations can be traced to the pioneering work of the Zeigler mine.

Mr. Whittier then turned to the present-day economic problems of the industry. He is keen in the belief that large steam plants will turn more and more to pulverized coal and thinks that Illinois coals in pulverized form can be burned without first being dried.

MUST RE-SPIN METHODS

The entire market fabric of the industry must be re-spun before a fair margin of profit can be expected. The price of coal should be based on thermal values and not on sizes. Engineers do not countenance selling any material for less than production cost but slack coal is thus sold in normal times. As about 75 per cent of the coal now mined is used by big companies it is natural to suppose that the latter will more and more operate their own mines which will be of large output and completely mechanicalized.

George Deike, president of the Mine Safety Appliances Co., of Pittsburgh, substituted for John T. Ryan, general manager of the same company, in a talk on "Sealing Fires in Gaseous Mines." The remarks by Mr. Deike were substantially the same as those presented by Mr. Ryan before the Cincinnati meeting of the American Mining Congress.

Dwight D. Wilcox, superintendent, Superior Coal Co., Gillespie, Ill., recommended for all bituminous mines the Illinois practice of erecting permanent fire seals of tongued-and-grooved wood boards, covered with wood-fiber plaster. Such seals are easily and quickly erected. They should be, and are, closely watched, and any cracks which may develop in the plaster are immediately closed with more plaster. Mr. Wilcox said he could not understand why some men still adhere to the belief that it is best to seal the return from a fire zone first. His experience was that, where this was done, a reserve crew of four or five men had to be maintained to carry to fresh air those who were overcome by the products of combustion.

Lee Haskins, superintendent, of the J. K. Dering Co., described his method of sealing fires. Ever since he first started work in Saline County, Ill., mine fires have been common. For this reason mine officials have had much practice in extinguishing them. In that district, stoppings of wood are erected in return and intake entries simultaneously, leaving in each an opening which is closed at the last minute. This opening not only facilitates simultaneous sealing, but also provides a ready entrance to the fire zone for exploration purposes at a later date. The stopping is covered in the customary way with wood-fiber plaster.

State Inspector Thomas English, Harrisburg, Ill., would fight a fire neither on intake nor on return. He would break a stopping outby of the fire so as to short-circuit the air. He would then seal simultaneously the headings that originally served as intake and return. John A. Garcia declared himself of the belief that the haulage entry should be sealed first, regardless of the direction of the air, because supplies can be more quickly brought to the sealing point on that entry.

At the Friday afternoon session lively interest was taken in a talk by Dr. Gilbert Cady of the Illinois Geological Survey on the geology of the upper Mississippi valley. The ancestral Mississippi followed a different course in the upper region from that occupied by the present river. Ice sheets invaded the region causing the river to flow along its fringes and consequently to change its course.

EDGES DISGUISED BY DRIFT

Attention turned to the economically possible stripping areas in Illinois, and Mr. Cady was requested to sketch as far as he was able their nature and location. The coal measures of Illinois lie in a spoon-shaped depression in the Pennsylvanian system. Generally speaking, the stripping areas are found along the edges or outcrop of the strata which lie in this basin. The glacial drift over these deposits is, however, often so thick as to make it impracticable in some areas to mine the coal by stripping, especially along the eastern margin.

The Friday evening session was devoted to "Cleaning and Preparation of Mechanically Loaded Coal." Dwight D. Wilcox read a paper on this subject prepared by F. F. Jorgensen, general superintendent, Superior Coal Co., Gillespie, Ill., who was unable to take the trip because

of a recent injury. Mr. Jorgensen believes that at least some of the sizes of all mechanically loaded coal should be cleaned by machinery.

Mr. Wilcox said that his company had found that when coal of sizes under ⅛ in. was removed from the coal to be washed and then mixed later, untreated, with the washed coal, the percentage of impurities is less than when these small sizes are washed with the larger. He ascribes this to the fact that it is in the machine cuttings that the small particles of impurities are found. Mr. Garcia was of a different opinion, believing that sizes under ⅛ in. should be washed with the big coal because of the difficulty of making a successful separation.

Mr. Garcia was not in favor of washing sizes over 2 in., declaring that the investment in the necessary equipment involved too great an interest charge to warrant the practice. Sizes larger than 2 in. can be satisfactorily picked by hand. This work can be facilitated by placing the picking tables 2½ ft. from the floor and by providing conveyors for the disposal of refuse within easy reach of the pickers at any point along the tables.

W. O. Brandenburger, of the Southern Coal, Coke & Mining Co., Belleville, Ill., said that his company had devised a screen which removed 90 per cent of the slate which mixes in the mine with coal of nut and egg sizes. Alternate bars on the screen are set below the mean inclination and the flat slate slides through openings which are thus formed perpendicular to the screen. The irregular surface of the screen also agitates the coal in its progress.

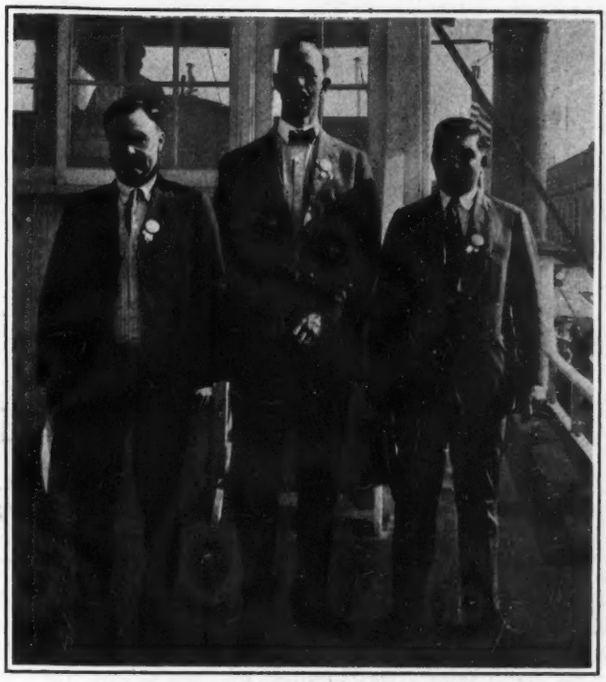
For the past eleven months Mr. Brandenburger has been operating No. 7 mine, of the Southern Coal, Coke & Mining Co., exclusively with loading machines. This mine is now producing about 1,300 tons per day. An attempt is made at the face to remove as much as possible of the roof slate that falls with or on the coal. What slate remains is largely separated either by the screen already mentioned or by hand picking.

MUST CLEAN AS WELL AS MINE MECHANICALLY

D. J. Carroll, consulting engineer, of Chicago, Ill., said that mechanically loaded coal must be mechanically cleaned. He said that at one mine where mechanical loaders were used in conjunction with hand loaders, the former were not used at certain times because if they were the standard of the coal shipped could not be maintained. This plant is exceptionally well equipped so far as screens and picking tables are concerned.

James Anderson, superintendent of the Madison Coal Corporation, Divernon, Ill., said that mechanical loading will increase the recovery of merchant coal, for as much as 10 per cent of the coal mined is thrown back into the gob with the refuse. Hand loaders will not take the time to separate the one from the other. He made this estimate on the basis of a test in which the reject from two cuts in a working place was cleaned. This operation revealed that 57 per cent of the reject was merchantable coal. Mr. Anderson said the only way to prepare machine-loaded coal was by cleaning it on the surface by mechanical means. This must be done even though it places an extra burden on the operator because machine loaders removed all the coal large and small, whereas the hand loaders kept the coal clean by rejecting the smaller sizes.

"This opens the subject of milling of coal," said C. C. Whittier. In the discussion on the cleaning of mechanically loaded coal, he thought, the utilization of the product should be considered. He was inclined to believe that the discussions were being based on coal for domestic use which represents a comparatively small part of the total yearly consumption. Mr. Whittier would not clean that coal which is later pulverized, whether it be loaded mechanically or by hand.



Program Committee Out for an Airing

On the left is J. E. Jones, safety engineer, Old Ben Coal Corporation. In the center is Dr. L. E. Young, general manager, Union Colliery Co. and on the right, A. D. Lewis, director of the Department of Mines and Minerals, State of Illinois.

A. F. Brosky said that a certain public-utility company had refused to allow the mine management of its subsidiary coal compay to load a 10-in. bone band with the rest of the coal though all of it is pulverized for central-station use. The power company claimed that the impurity would reduce inordinately the efficiency of the plant.

Exception to Mr. Whittier's remarks was taken by Dr. L. E. Young. The seam being mined in the Kathleen mine of his company contains a blue band, 1 to 3 in. thick, which must be removed to make the coal acceptable for any use. This is accomplished by bringing the coal down in large chunks. The blue band is frozen to the coal above it and is severed by compressed-air hammers in the tipple.

Unintentional undercutting in clay is a source of impurities for which reason the Kathleen mine management emphasized the necessity of leaving a small quantity of coal on the floor of the mine. An attempt was made to get results by placing with each machine loader a man whose duty it was to trim the mine cars and pick whatever refuse fell from the machine into them. The results were far from satisfactory. During idle dumping and hoisting periods on the big shaft bottom of the Kathleen mine the attendants spend their time picking refuse from the top of loaded cars and dropping it into an empty car which is spotted for that purpose.

At the Kathleen mine, bone is successfully separated

Improvised Entertainment Between Addresses

The members amused themselves by watching the darkies fish, with their mouths, coins thrown in a tub. At other times the negroes would stage for the institute a game of "African golf," or with marvelous agility and unbounded energy would do the "Charleston" for the edification of all beholders.

from the lump and egg sizes by hand. Mr. Young has provided platforms along the lump-picking tables, on which large lumps containing impurities are skidded, thus facilitating the handling of lumps that are too heavy for lifting.

Saturday was a big day for the Institute. The boat reached Keokuk, Iowa, at about 8 a.m. Here are located the huge hydro-electric plant of the Mississippi River Power Co., which was inspected by the members, the U. S. Government lock, a dam of no small proportions and the largest dry dock on the upper Mississippi. The latter will accommodate a boat more than 400 ft. long, a display of optimism as to the future navigability of the river. All were at the rails during the locking in of the boat through the dam on the upstream trip and the locking-out process on the return trip downstream. The huge dam which is over a mile long and 31 ft. high raises the river on the upstream side about 32 ft.

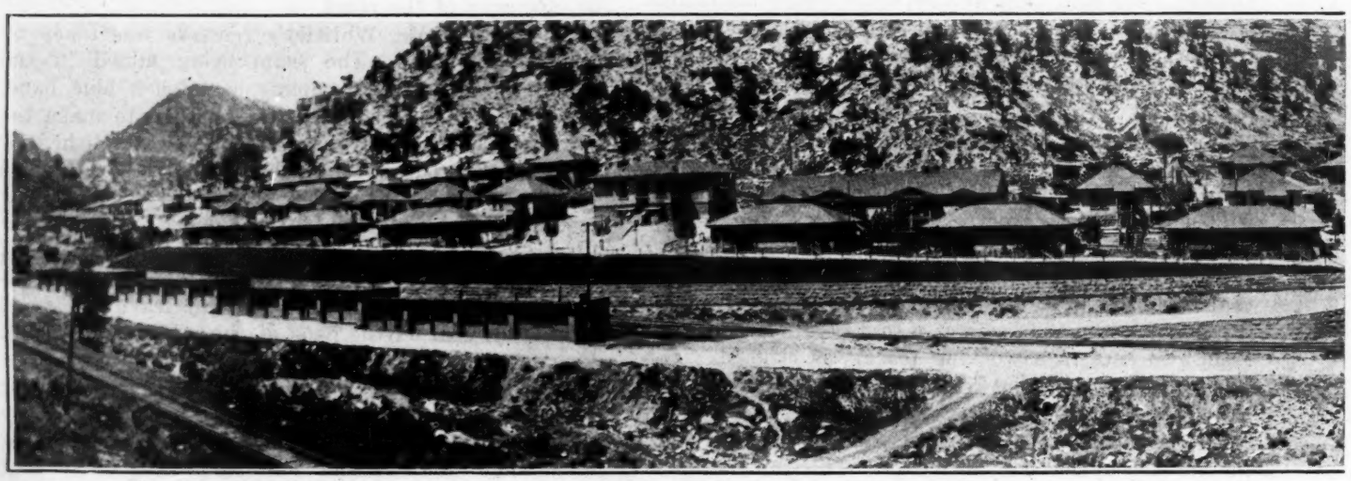
At low stage the Mississippi has a flow past Keokuk of about 20,000 cu.ft. per min. which coupled with a head or drop of 32 ft. provides enormous potential energy for the development of power. The hydro-electric plant now has a capacity of 150,000 hp., and foundations have been built for the addition of such equipment as will produce 200,000 hp. more.

At Keokuk the Institute was met by Major M. Meigs, a retired government engineer, who for many years superintended channel improvements in the upper Mississippi and by G. M. Davidson, president of the Superior Coal Co. and his wife. During the trip from Keogkuk to Fort Madison and return, Major Meigs gave an address entitled "Reminiscences of Keokuk and Nauvoo." The latter in Hebrew means "beautiful city." He reviewed the history of Mormonism at Nauvoo, where Joseph Smith, the founder and his followers lived from 1839 to 1843. The boat landed at Nauvoo, and the members went ashore where they visited the points of interest, including the log house occupied by Smith and the grave of his first wife.

Saturday afternoon session, of which D. D. Wilcox was chairman, was started with a paper by H. T. Bannister, safety inspector of the Madison Coal Corporation on "Predominating Hazards in Coal Mines and their Remedy." His paper appears on other pages of this issue. Then followed a talk on "Safety Practices in a Southeast Missouri Lead Mine," by J. H. Steinmesch, superintendent of the Desloge Consolidated Lead Co. This firm operates three mines, in which about 175 underground men are employed in all. Thus far it has had a total of twenty fatal accidents which is at the rate of one fatality for every 112,000 men-shifts. In these mines 60 per cent of the recorded accidents are due to falling rock; 20 per cent to explosions (untimely detonation of explosives); 15 per cent to falling in or about shafts and 5 per cent to haulage.

As in coal mines, falling rock is the chief source of accidents. Haulageways are 20 to 50 ft. high and are seldom timbered. The men work by contract. The earnings of a group are divided equally. In addition to their share, which is about $6 per shift, the head contractors are paid a bonus of 1c. a car by the company. They inspect the working places before their men arrive; the men in turn are instructed to make a thorough examination before beginning work.

The last session of the trip was devoted to a round-table discussion of mechanical loading, led by John A. Garcia. He gave his views on what might be expected



Village and Tipple of the Standard Coal Co., Standardville, Utah;

On the left of the illustration, down near the roadway, are eight garages for automobiles which accommodate thirty-four cars. Just to the right of the pole at the right end of these garages is the public school of Standardville. The long ranging building to the right of the school is a six-family apartment house. The company has four houses of this pattern. To the right of the house furthest up the gulch on the left of the right half of the illustration may be seen the village hospital, not a large building but well constructed like the other houses in town. The big building on the near side of the road that parallels the railroad track is the mine-rescue station and above it on the far side of the ramped road is the confectionery store. Back of the bandstand is the store, and behind it is a big house with 20 apartments. To the right of this but more in the foreground is the mine office and to the right of this again the machine shop. At the edge of the illustration—too much at the edge

from mechanical loaders if only the miners would permit shooting during the day shift. With such a concession he feels sure that entry-driving machines could be double-shifted so as to advance 50 ft. per day. Given such rapid development, he said, several operators believe they could profitably drive entries some distance in advance of wide places. Rooms would be driven so narrow as to provide a recovery on first mining of only 25 per cent. The pillars would be extracted by slabbing. The final recovery would be much greater than at present, probably 75 to 80 per cent, because the speed of extraction would make it safe and feasible to remove a larger percentage of coal.

D. J. Carroll, consulting engineer, of Chicago, and formerly chief engineer of the Chicago, Wilmington and Franklin Coal Co., told a few of his experiences with loading machines at New Orient. To produce the 10,000-ton capacity per day at that mine about two acres are extracted daily. Thus an enormous development must be maintained for steady operation. The value of loading machines for entry work has been fully demonstrated at New Orient. Better mining methods and layouts, said Mr. Carroll, must soon be introduced into the mines of Illinois so as to increase the recovery of coal. Mr. Carroll said he believed that the percentage extraction, by and large, might be nearly doubled, which would about cut development and other costs in two.

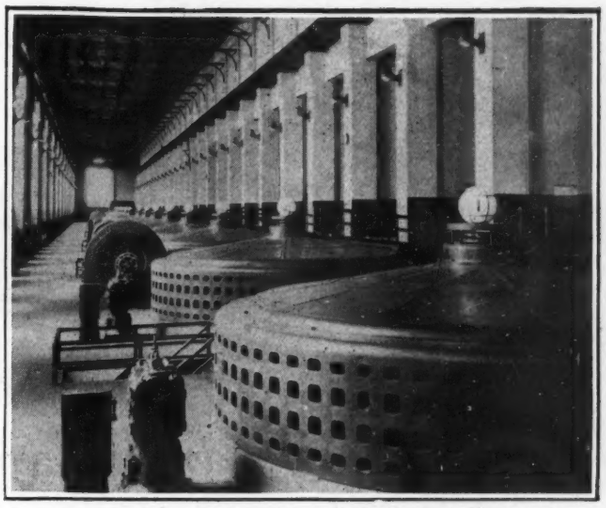
"Those who started to mine coal 35 years ago will have to learn all over again," said Lee Haskins, superintendent of the J. K. Dering Co. He added that without loading machines the two mines of his company would be idle. These are being operated entirely by mechanical means.

The first experiment with loading machines in its Illinois mine was with slabbing, which did not work satisfactorily. The room-and-pillar system was, therefore, revived but with some modifications. In the middle and at the entry end of panel entries, double, cross-panel rooms or entries are driven so as to divide a panel into four quarters. Two machines work in one panel. They drive a 30-ft. room to a pair of cross-panel entries; the machines are then reversed and an adjoining room is driven in the opposite direction with 50-ft. centers.

G. E. Marble, of the General Electric Co., was asked to give a few remarks on flame-proof motors which might be suitable for the driving of loading machines. He said that permissible direct-current motors for many reasons are difficult and expensive to build. His company builds 10- and 15-hp., direct-current motors of the continuous-service type but none were constructed any larger than these. Permissible motors which were developed for storage-battery locomotives might or might not do for a particular type of loader.

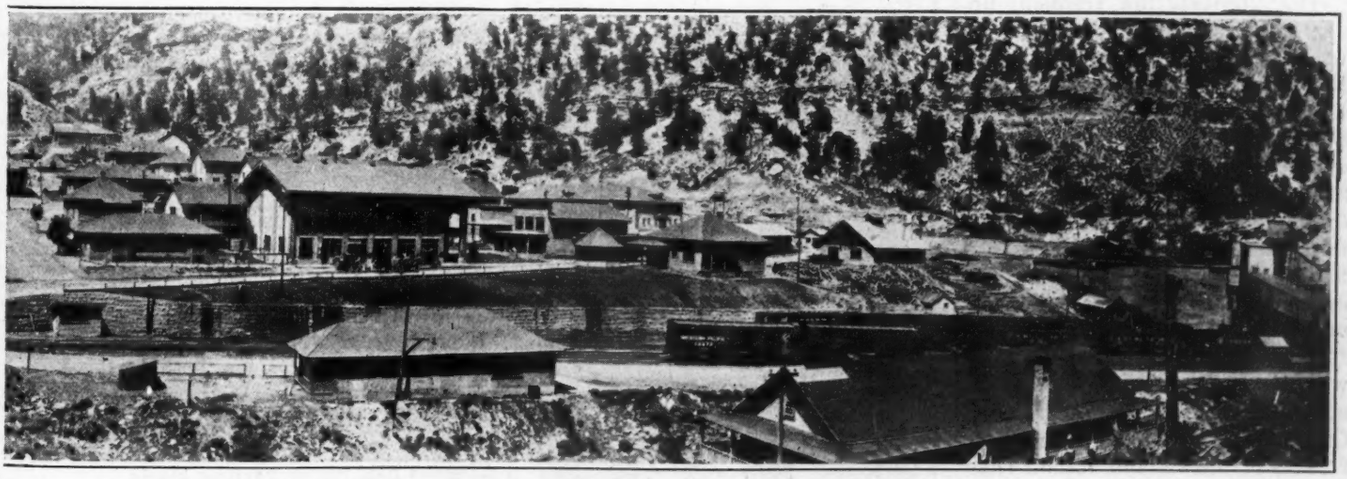
The Southern Coal, Coke & Mining Co. is loading exclusively by machines at its No. 11 mine. Nine Wilson loaders are producing from 1,100 to 1,200 tons per shift. The coal is shot off the solid, and the output is greatly limited by the small size of the car used—1½ tons capacity.

At the executive committee meeting of the Illinois Mining Institute which was held on Sunday morning it was decided to hold the fall meeting, on Nov. 12 and 13, at Harrisburg, Ill. The St. Louis and Chicago chapters of the American Institute of Mining & Metallurgical Engineers will probably hold their meetings nearby at the same time.



Fifteen 10,000 Hp. Turbines at Keokuk

The hydro-electric plant of the Mississippi Power Co. which was visited by the institute. The head on the turbines is 32 ft. Foundations are laid so that 200,000 hp. may later be added.



Nearly all Its Houses Are of Tile and Stucco with Brick Pilasters

unfortunately—will be seen the tipple, which has a rotary dump. The extensive and beautiful lawns are sprinkled with mine water almost continuously. The Canon Hotel has a dormitory for 72 persons on each floor, with a lavatory for each person. There are 84 garage stalls in Standardville but more are needed. Probably 130 cars are owned by miners, many of whom live at Helper and Price. The mine dips as it enters the hill and the coal has to be hoisted up a slope, hauled a mile by electric locomotives to the surface and then let down to the tipple by a hoist. That is not a desirable arrangement, so with true Western spirit the company has started a 4,000-ft. tunnel that will permit an electric locomotive to deliver trips at the tipple. The rock in this tunnel is loaded by a scraper. About 30 cu.yd. of muck are delivered in eight hours, the labor charge of the muck delivered in the dump pile being 40c. per yard. Few Eastern mines are as keen for grade revision as those in the West.

Leading Mine Hazards and Their Antidotes

Timberman, Trackmen and Underground Laborers Have Most Non-Serious Accidents—Wrong Tools and Overstrain Cause Many Serious Injuries—Eyes Also Suffer—Use of Gloves to Be Discouraged

By H. T. Bannister
General Safety Inspector, Madison Coal Corporation, Glen Carbon, Ill.

OLD TIMERS in the mining game, whose active experience extends back many years before the enactment of our present compensation laws, are inclined to believe that safety conditions and accident prevention have advanced but little during that period. They well remember the old days when the miner was compelled to serve a long apprenticeship, generally under his own father or near relative, as result of which he had years of training and experience before he was given a working place of his own, with the entire responsibility for it.

The result was that thirty or forty years ago the average miner was a highly skilled workman, who took the same pride in his workmanlike methods that is shown today by the most expert artisans in other lines. He did his own undermining, frequently sheared one or both ribs of his working place and used one keg of powder where the average loader today uses fifteen or twenty.

The relatively few accidents under those conditions, as compared with the ever-increasing number reported now from the mines of Illinois, have led many to believe that the modernization of mining operations has been attained only at increased sacrifice of life and limb. Statistics, however, reveal that this is not so, and that though under present conditions a much greater number of minor accidents are reported than formerly, the fatalities and the serious accidents which permanently cripple have steadily decreased in proportion to the tonnage produced. The official reports of the state of Illinois show that in the ten-year period from 1882 to 1891 inclusive 5.1 men were killed per million tons mined, as compared with 2.8 men per million tons in the ten-year period from 1912 to 1921 inclusive. A still further reduction is shown for the four-year period ending June 30, 1925, to 2.2 fatalities per million tons mined.

The reduction in fatal accidents per thousand men employed does not, however, show a similar percentage of decrease during the above periods, the number being 2.1 for the ten-year period of 1882 to 1891 inclusive, and 1.6 for the four-year period ending June 30, 1925. This is, of course, due to the fact that the same number of men today produce a much greater tonnage than they did thirty or forty years ago.

The same official statistics show that the miners at the working face and the men who operate the undercutting machines are exposed to greater danger than any other mine workers. This predominating hazard has continued as such through the entire period for which statistics are available, and easily maintains its position at the head of the list at the present time.

H. T. Bannister

Next in order of cause of fatilities is haulage, whether by mule or locomotive. As mine cars and locomotives have grown larger, and the length and weight of the trips have increased, the number of fatalities from this source have grown in proportion.

Next in order of fatalities come gas and dust explosions, both local and general, then deaths caused by explosives, and finally a lesser number that are attributable to miscellaneous hazards of various kinds.

The official statistics therefore, dating back to 1882, indicate the predominating hazards of the underground workers almost uni-

Article entitled "Predominating Hazards in Coal Mines and Their Remedy" read before the Illinois Mining Institute, June 26, on the boat between St. Louis, Mo., and Nauvoo, Ill.

formly from that day to the present time to be as follows:

(1) Falls of roof, face and ribs.
(2) Pit cars and locomotives.
(3) Gas and dust explosions (local and general).
(4) Explosions.
(5) Miscellaneous causes.

The records kept for seven years in my office, covering the fatalities incurred in the operations of the Madison Coal Corporation confirm the above classification of hazards as outlined by the official state reports.

Statistics for former years regarding non-fatal accidents, classified as to cause, are too incomplete to attempt any general classification. It is more than likely, however, that were such figures available the causes of non-fatal accidents would be in nearly the same relative order as the fatal accidents previously given. In those days, however, it took a really serious accident to get into the records. Minor cuts and bruises were seldom reported, and even accidents that caused the loss of a day or two were not considered of serious importance. Since the compensation law was passed, however, all this is changed, and with the reporting of every minor and trivial accident the classification of the hazards by which they are caused becomes a matter of considerable difficulty. To obtain even an approximate idea as to the relative importance of the different hazards that enter into the non-fatal injuries it will be necessary to eliminate the great number that are reported, but which cause less than thirty days' loss of work. Having done this the remainder comprising the more serious non-fatal accidents are classified by the state for the year 1925 in the following order:

(1) Falling roof and sides.
(2) Pit cars and locomotives.
(3) Lifting.
(4) Explosives.
(5) Miscellaneous.

SERIOUS ACCIDENTS INCREASE

The same state statistics show that in the ten-year period ending in 1912 and immediately preceding the enactment of the first compensation law in Illinois, there was one non-fatal serious accident for every 102 men employed. In the five-year period from 1913 to 1917 inclusive, during which elective compensation was in effect, the injuries causing 30 or more days of absence increased to one for every 65 men employed, and in the eight-year period from 1918 to 1925 inclusive, under compulsory compensation, a further increase occurred bringing the number up to one injury for every 27 men employed. Inasmuch as figures are said not to lie, those inclined to jest about a serious subject are tempted to include the compensation law itself as one of the predominating hazards that beset the miner. The explanation, of course, lies in the fact that every non-fatal injury now receives attention, whereas in the old days many such injuries were not recorded. The principle that every industry should take proper care of those injured in performing its work is too well established to admit of argument, and it is only the individual miscarriages of justice under the present arrangement that admit of question.

FATALITIES have been on the decrease in the coal mines of Illinois, but the non-fatal serious injuries have appeared to increase, doubtless due to the keeping of more careful record. Strange to say, the miner and undercutter are not so subject to these trivial accidents as is the man who is engaged on timbering and tracklaying. The men at the working face come next, with the haulage men and miscellaneous workers as a third. Last of all come surface men.

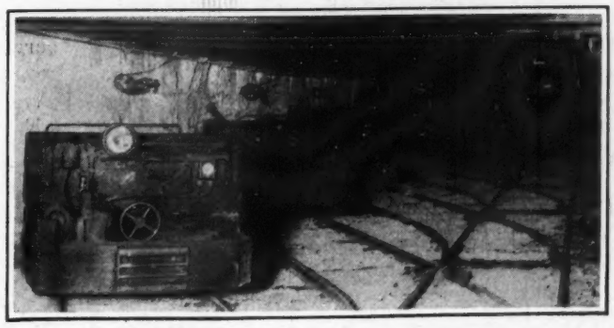
No general official data are available regarding injuries that cause less than 30 days' loss of time. My records, however, include every injury reported from the mines of the Madison Coal Corporation, and in this class of accidents is included an astonishing number of minor injuries due to almost every cause imaginable. In the year 1925, for instance, 1,672 injuries of almost every description were reported from the four mines then in operation. Here again the great majority, or 70.3 per cent to be exact, occurred among the men working at the face and engaged in the work of loading and undercutting. Haulage was responsible for 13.2 per cent, and under the general item, including timbering, track laying and miscellaneous labor also the same percentage was recorded. Surface accidents caused 3.3 per cent of the total injuries reported.

MORE THOUGHT GIVEN TO TRIVIAL INJURIES

Analysis of these figures disclose some surprising facts. Thus on the basis of the number of injuries reported and the number of men employed in any single classification, those engaged in timbering, track laying and underground labor received a higher percentage of injuries than any other group. On the same basis, the men at the working face would come next in point of hazard, with haulage and miscellaneous as third, leaving the percentage of surface accidents as lowest in the list.

These apparent inconsistencies, however, are due to the trivial nature of most of the accidents in this classification and do not in any way change the relative hazards already determined as responsible for the fatal injuries and those causing more than 30 days' loss of time. How to remedy these less serious accidents has probably received more concentrated study and been the object of more practical effort in the last few years than in the entire preceding history of the mining industry.

Statistics all indicate and mining men well know that the greatest hazard is the falls that occur in the working places. These account for a large percentage of the serious and fatal injuries to miners and ma-

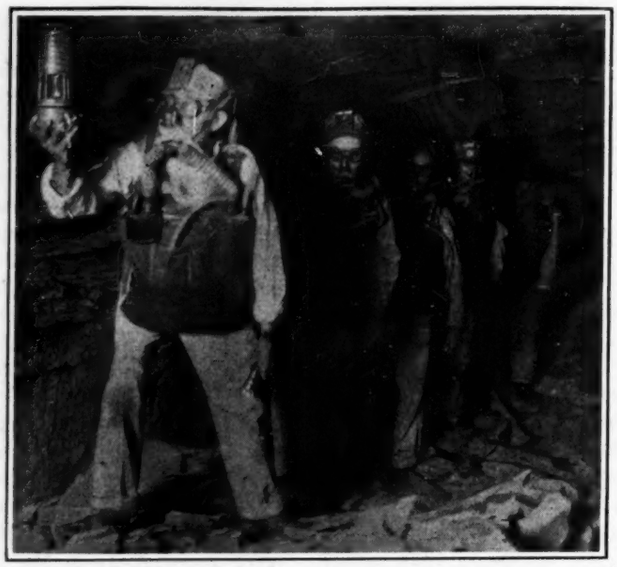


Underground Storage-Battery Locomotive Station

Locomotive barn at No. 12 Mine, Cambria, Williamson County, Illinois, belonging to the Madison Coal Corporation The coal is about 90 in. thick. The gage of the track is 42 in.

chine men. The mining law takes cognizance of this in its provision that the mine examiner shall particularly inspect the top in the working places, as well as the passageways along which the men must travel, and that all bad top observed, or discovered as such by sounding, shall be plainly marked to indicate its dangerous condition. The face bosses and inspectors can greatly reduce this hazard by close supervision and by compelling men to leave dangerous places and do no other work until the places have been made safe, but it is obviously impossible for them to watch all the places all the time.

The individual miner, assuming that he is competent in every way, could do more for his own safety than any one else. Unfortunately it is frequently the case that the more expert the miner the greater his contempt for danger of this kind and, even though he fully recognizes it, the temptation to load out his turn before stopping to set a prop or crossbar is generally too strong to be resisted. Investigations of fatal accidents in the mines of the Madison Coal Corporation indicate that fully half such fatalities could have been avoided if the miner had made the place safe as soon as he recognized the danger.



Rescue Team at Madison Company's Mine

Scene in Mine No. 9, of the Madison Coal Corporation, Dewmaine, Williamson County, Illinois. This is a shaft mine, near the town of Carterville.

Systematic timbering, adapted, of course, to the conditions prevailing in the different sections of the mine, and rigidly enforced by the management, can do much to reduce the natural hazard existing at the working face. An adequate supply of props, cross bars, cap pieces, etc., should, moreover, be maintained in easy reach of each working face, so that no one can excuse failure properly to protect himself by saying that timbers were not available.

A great advantage is gained by having, and using, suitable tools to do the various kinds of work required to make a place safe. For instance, a pick should not be used where a bar is needed, an axe should not be used for a sledge, nor a pump jack where a timber jack would be better. Four fatal accidents occurred in 1925 in the mines of the Madison Coal Corporation due to falls from the roof, and only one of these happened in a place that was well timbered and apparently in good condition. The danger existing in the other three was readily apparent, and in two of them the men disregarded the mine manager's orders to stay out of the places until they had been made safe.

The hazard due to haulage operations, which ranks second, can best be combated by the men themselves refraining from dangerous practices and following the rules laid down by the management. Such habits as kicking latches while cars are in motion and jumping off of moving locomotives to run ahead and throw a switch, have taken a large toll in fatal and serious injuries. Operating a trip without a tail light or marker has caused many deaths. The trips break in two, and men walking along the track, thinking the whole trip has passed, step back on the track oblivious to the fact that trailing cars are close behind.

Proper maintenance of haulageways, with safe clearance at all points, will automatically increase the safety of every one connected with the haulage operations. Track should be in good condition, mainline switches well designed and accurately laid to proper engineering standards. Proper grades where cars are thrown into the empty tracks at the partings, thereby relieving the necessity of chaining or poling are time savers as well as safety measures. A moderate expenditure for obtaining proper grades on the main lines so as to do away with humps and other irregularities will make more efficient haulage and greatly promote safety. Maintenance of lights at strategic points along the main lines and particularly at curves, switches and other places where derailments are liable to occur, will prevent many accidents.

On the gathering haulage in particular, whether by mule or locomotive, places where falls have occurred should be lighted, particularly at the edges, because it is human nature to straighten up at such places, and in several instances men have failed to bend down again in time with fatal results.

Mining men as a rule think that, only at infrequent intervals when general explosions, involving an entire mine or large sections of it, do gas and dust explosions take a large toll of life. The figures indicate, however, that this is incorrect and that, as a matter of fact, the many local, and occasional general explosions, take a sufficient toll of lives to classify this cause as third through the last forty years. The remedy for this is, of course, apparent, but frequently expensive and difficult of enforcement among the men. Adequate ventilation, in order to prevent dangerous accumulations of gas, is perhaps the first requisite, and is as important as the rock dusting of dry and dusty mines. The use of closed lights should be enforced in all mines which are in the least degree dangerous in this respect. Ample and competent supervision is, of course, indispensable in such mines. Explosives of all kinds rank next in the

THE MADISON Coal Corporation had 174 eye accidents in 1925, some quite trivial, some involving the loss of one or both eyes. Most of them were due to getting coal or sulphur in the eyes, but mine water also causes injuries when it gets into eyes that are already inflamed or diseased. The men do not like to use goggles because moisture forms on the glass underground.

list of general hazards. The mining law recognizes its importance by devoting much attention to the permissible methods of storage above and below ground, how such stores shall be handled, the quantity that may be kept in individual working places, how the kegs shall be opened, how the cartridges shall be prepared and the quantities of powder that may be used under different conditions. Rigid enforcement of the law in this respect coupled with close supervision of the use of explosives underground will do much to make their handling safe. Overcharging of shots is one of the commonest sources of danger to life and property around the mine. The Madison Coal Corporation tries to combat this hazard by educational work among miners and company men. For this purpose an expert shooter is employed who devotes his entire time to advising the men at the working faces as to how they can shoot more coal with less effort, and at the same time increase their personal safety and incur less expense for powder. With the usual number of exceptions the men are found, as a whole, receptive to such instructions.

SPECIALLY constructed and carefully insulated mine cars are used by the Madison Coal Corporation for the transportation of powder even though all power is shut off in the mine when powder is hauled. The men who deliver the powder hold the keys of the electric switches so that current cannot be restored till they surrender them.

The law requires that electric power shall be cut off the mine while the powder is being taken down the shaft, and shall be cut off from the inside while it is being delivered. The Madison Coal Corporation has made a practice for several years to use only specially constructed and insulated powder cars into which the powder is loaded at the magazine on top and in which it remains until delivered at its destination underground. These insulated powder cars have been tested by filling them with powder kegs over which loose powder has been poured. Heavy wire is then wrapped around the car, and the electric current applied until in many cases the wire is melted. Even under these adverse conditions the powder is not ignited.

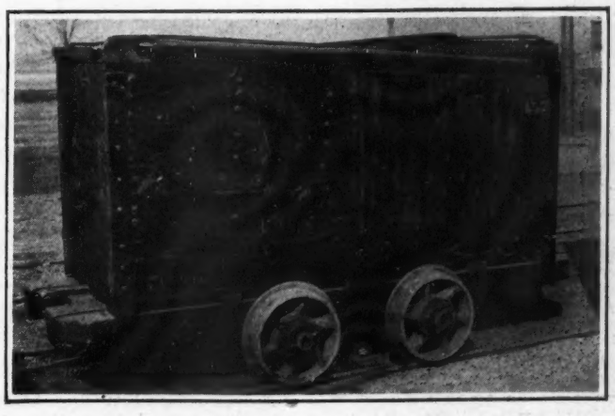
As a further precaution the electric switches are locked open and the keys are given to the men who deliver the powder, so that it is impossible through error to turn on the current before all the powder has been delivered. Lifting and straining is listed by the state reports as the third most important cause of non-fatal injuries. Making due allowance for the many illegitimate claims for injury from lifting, a large number of bona-fide injuries of this kind remain, and most of them can be prevented only by individual education of the men themselves. Lifting a mine car on the track when a jack and bar should be used, or lifting a heavy chunk of coal when a half minute's work with a sledge would break it, are prolific causes of hernia, back strain and injury to muscles and ligaments. Injuries to the eyes form an important group of accidents reported at the Madison company's mines. In 1925 there were 174 accidents of this kind, ranging from the most trivial to those in which the sight of one or both eyes was seriously involved. Most of them are caused by getting small particles of coal or sulphur in the eyes while working at the face, but others result from mine water getting into eyes already in an inflamed and diseased condition. Only four of the injuries occurred at emery wheels, and they could, and should, have been avoided, for emery wheels are a recognized hazard and goggles are provided at the company's shops for all men engaged in grinding. The use of goggles has never, to my knowledge, made headway in the mines because the vision is quickly obscured by perspiration on the glass. I understand that a new form of goggles for underground work has been developed. It consists of a fine wire mesh which is said not to unduly obscure the vision. Even so, it will take no little effort to induce the men to wear such protection.

The Madison Coal Corporation has many non-fatal accidents charged to loose material, both on top and underground. This is particularly the case when construction work of any kind is under way, many of them being caused by stepping on up-turned nails, or stumbling over a misplaced board or timber, and falling over props and rails lying along the traveling way. Systematic orderliness and cleanliness is the practical safeguard against such injuries.

Several injuries, some of them serious, have been directly caused by the use of gloves. As result the wearing of them has been discouraged except by men whose work requires the handling of electrical conductors and on special jobs in which the benefit of gloves is unquestionable.

The low voltage permitted by law is undoubtedly the reason why accidents due to electricity are so comparatively few. The few fatalities from this cause have invariably been directly chargeable to reckless actions on the part of the injured party. The men should be taught, however, that every wire is dangerous. The circuits over the traveling ways should be carefully guarded, and all knife switches underground should have fiber guards in front of them. In front of switchboards, both above and below ground, insulated platforms or heavy rubber mats should be so placed that the operator has to stand on them when handling the switches.

Infection of trivial injuries often results seriously, and the company attempts to reduce this hazard by teaching the men how necessary it is to apply an antiseptic promptly. To this end medical



Test Proves Powder Car Safe from Stray Current

This electricity-proof powder-delivery car is lined with heavy asbestos, inside of which a double layer of 1-in. wood is placed. Asbestos and wood linings are secured by wood pins so that no bolts or metal reach inside the car. The track journals are insulated from the car body.

and first-aid supplies are provided at each inside parting, and also at the mine bottom as well as on the surface. Certified men are to be found in every part of the mine who are capable of caring for any ordinary injury. In one year alone over four hundred men in the company's mines were trained in the use of rescue apparatus and first-aid methods, all of whom received state, and many Federal, certificates. Permanently organized teams are maintained at each village.

Specially designed rescue cars, containing full equipment for administering first aid to the most serious injuries are kept at the mine bottom on a special switch where they can be instantly reached by a locomotive. They are so equipped as to carry a stretcher with the maximum degree of comfort to the injured man. The hospital authorities have on more than one occasion told us that the promptness with which severe cases have been treated underground and the care used in transporting them have been of the greatest benefit to the patients.

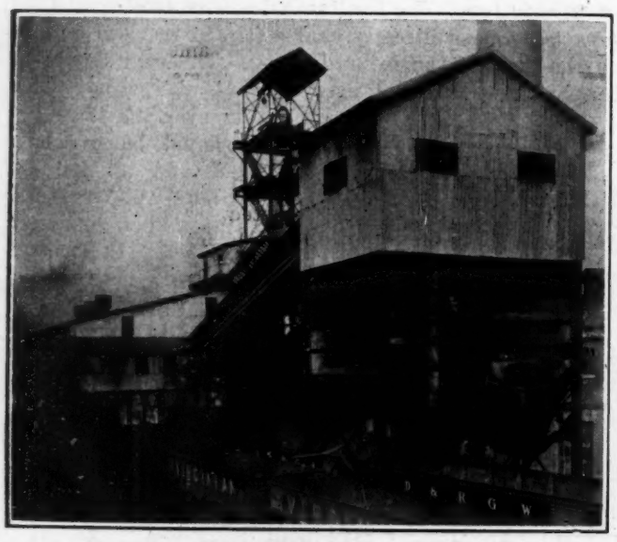
Proper provision for the safety of the men in most instances automatically provides an equal degree of safety for the property itself. When viewed from every standpoint however, the general reduction of mining hazards, as they pertain first to the safety of life, and second to safety of property, can only be obtained by thorough organization, careful consideration of the conditions at each property, thorough supervision, and the education of the individual workers to a realization of the dangers that beset them on all sides and of the way to avoid them. The human element, in the last analysis, plays the biggest part in all kinds of safety work.

Coal on Glen Rogers Grizzly Rolls Over So Slack Cannot Ride to Chute

Not infrequently changing market demands require alterations or additions to existing equipment. In the accompanying illustration is shown the nut-coal house at Glen Rogers, W. Va. The tipple at this operation as first constructed and still used was not provided with facilities for preparing nut coal, because the structure was intended to serve as preliminary equipment only during the development of the mines. The recent pronounced demand for nut coal, however, has justified the addition of machinery for its preparation, even though a much larger and more complete tipple will be erected later. A mixture of nut and slack is conveyed from the tipple proper to the structure shown in the right foreground, where the nut coal is prepared.

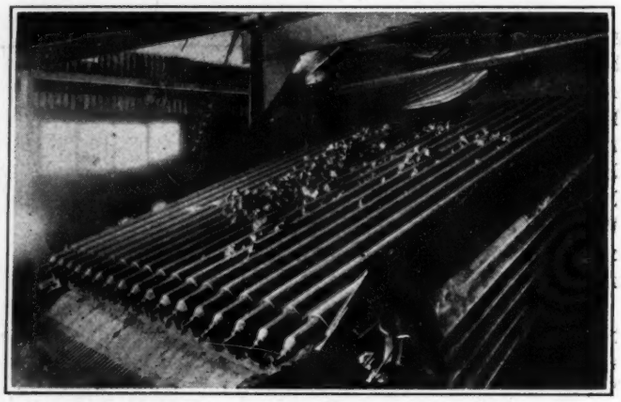
Several devices are now available for the rapid preparation of nut coal. Of these probably shaking and vibrating screens are the most common and best known. Where the coal breaks in cubical pieces, however, the form of screen may well be different from that used where the coal breaks in "slivers" or in long slabs.

Probably the first screens used at American coal mines were of the type now known as grizzlies, that is, they were made up of stationary bars, spaced at uniform distances from each other, down which the coal slid lengthwise of the bars. Such screens were open to the objection that an appreciable quantity of small coal would ride down the screen upon the larger lumps.



Rescreener House at the Glen Rogers Mine

In the foreground may be seen the rescreener building, in which the nut coal is separated from the slack. One-inch screenings reach this building by way of a belt conveyor. It is here separated into nut and slack sizes, the slack going to the bin beneath the rescreener and the nut being returned by belt conveyor to the tipple, where it is loaded onto cars by means of a loading boom.



Big Capacity, Little Degradation with this Screen

This revolving grizzly, which is 8 ft. long and set on an inclination of 18 deg., makes a rapid and efficient separation of the nut and slack coals. All of these 4-in. rolls revolve in the same direction, the fine coal falling through the 3-in. openings between them and the larger pieces coming over the lower end. This machine, which requires only 3 hp. for its drive, is capable of handling a feed of 150 tons per hour. The degradation is negligible.

In the accompanying illustration is shown a Frederick roll screen, or revolving grizzly used in this rescreener. This is composed of a series of 4-in. rolls each 8 ft. long and spaced so as to give a clear opening of $\frac{3}{4}$ in. between adjacent rolls. A 3-hp. motor drives these rolls at 600 r.p.m., all of them turning in the same direction, being gear-driven from the motor. This unit, which is set on a slope of 18 deg., is capable of preparing nut coal from a feed of 150 tons per hour. The degradation of this product is practically negligible, and, as may be judged from the preceding figure, the capacity is unusually large. Furthermore, these rolls tilt and wobble the big pieces until it is practically impossible for fine material to ride across the screens upon them.

WIRELESS MINE TELEPHONE—It is reported that the U. S. Bureau of Mines is meeting with much success in tests of a mine telephone that requires no metallic conductors. These trials are being made at the Indianola mine of the Inland Steel Co. The practical application of such a system would be probably confined to communication with men who may be entombed within the mine or otherwise prevented from getting out.

Rock-Dusting at Berwind-White Mines Costs Less Than One Cent per Ton of Output

Actual Costs of Installation and Operation—Expect That Cost Will Be Lowered to Six Mills per Ton of Coal Produced, as Many Items Included Are More or Less Permanent in Character

By Charles Enzian

Mining Engineer, Berwind-White Coal Mining Co., Windber, Pa.

MUCH DOUBT has been expressed as to the actual costs of rock-dusting, and consequently the experience obtained in the treatment of two gas-coal mines of the Berwind-White Coal Mining Co. to a standard permitting them to meet the requirements of the Pennsylvania State Compensation Rating Bureau may, in a degree, reduce this uncertainty.

All mines of this company were extensively sampled by the scoop-and-brush method and laboratory analyses made. Where, as a result of these studies, dust-explosion hazards were indicated, the roadways were rock-dusted as a protective measure. These, in their respective importance, were found to be the mines of the Ocean Coal Co., the Maryland Coal Co. and the Eureka No. 37 mines at Windber. The management decided that rock-dusting be undertaken promptly at the Ocean Coal Co. mines, Herminie, Pa., at the Maryland Coal Co.'s shaft mine, St. Michael, Pa., and at several of the Eureka mines in the Windber district.

The mechanical engineer of the company, in collaboration with the superintendents of the Ocean mines and the Maryland shaft, proceeded with the design and construction of two rock-dusting machines. The Ocean machine was put into service in September, 1924, and the Maryland machine in December of the same year. The experience gained by the use of these two machines indicated that certain changes should be made in the sizes of the fan and motor.

During the past six months, one improved machine has been used in the Ocean mines and two improved machines in the Windber mines. These are giving excellent results. At the recent trial of the last Ocean machine, a crew of three men dusted 13,333 lin.ft. of entry in seven hours, placing 20 tons of dust, which is the equivalent of 3 lb. per linear foot. Under normal conditions this crew dusts 8,000 lin.ft. in an 8-hr. shift.

As the rock-dusting equipment at the Ocean mines has been in operation for a longer period than that in any of the other mines and as this operation has been officially rated as a "standard rock-dusted mine," the experience and results gained at these mines present the most interesting data of any. Because the other mines are larger and have physical conditions less favorable to rock-dusting, they have not, as yet, been completely treated with incombustible dust.

After every local factor bearing on the problem had been carefully studied and the results desired had been determined, it was decided to rock-dust the workings in the following order: First, all butt entries, room necks, and stump workings; second, all panel entries; third, haulage entries; fourth, all rooms. Dust barriers were to be erected at the same time as the entries and rooms were rock-dusted, and the work on these was to be completed by the time the application of incombustible dust to the entries and rooms was completed.

The dust barriers are placed in aircourses, because the tracks in them in most instances have been removed, and full dusting is therefore impracticable. In most instances it was found that many falls of drawslate or coal had occurred. These had to be removed before the barriers could be erected at the desired locations. The barriers are of the improved V-trough type and are of sufficient size and number to provide 100 lb. of dust for each square foot of cross-section of the roadway. Being erected at the intersections of the main and butt entries, they should confine explosions to a single split.

One of the first steps in this work was to prepare

Charles Enzian

Mr. Enzian's experience in the U. S. Bureau of Mines long ago taught him the dangers of rock dust. It could not be otherwise with the powerful demonstrations at the Experimental Mine at Bruceton, Pa. Consequently, he has been active in promoting rock-dust work in the mines of the Berwind-White Coal Mining Co. A graduate of Lehigh University, he went, after nine years with the Lehigh Valley Coal Co., to the Bureau of Mines which he represented for five years in the anthracite region. Later he was with the Philadelphia & Reading Coal & Iron Co. for six years, and then president and manager of the Liberty Coal & Iron Coal Corporation of Kentucky where he stayed two years. For the past 3½ years he has been chief mining engineer of the Berwind-White Coal Mining Co. He has been a member of the advisory board of the Scranton Mine Cave Commission, a member of the Pennsylvania State Anthracite Mine Cave Commission, a president of the Engineers Society of Northeastern Pennsylvania, also a valuation engineer, U. S. Treasury Department, Bureau of Internal Revenue, Division of Mineral Resources. As consulting engineer, he has reported on mines in Virginia, Kentucky, Pennsylvania and Canada.

Article entitled "History and Proven Advantages of Rock-Dusting," delivered at the Accident Prevention Session of the Annual Convention of Practical Coal-Operating Officials, held by the American Mining Congress, at Cincinnati, Ohio.

the entries for rock-dusting. Any loose material, whether of rock or coal, was carefully trimmed from the roof and ribs, and accumulations of dust and fine coal lying on the timbers or projections in the ribs were brushed or washed off. All debris on the floor of the entries was then thoroughly cleaned up and loaded. This work, of course, has to be done in any event but should always be performed before the mine is rock-dusted.

At the Ocean mines, limestone dust, of which 67 per cent would pass through a 200-mesh screen, is used. The Maryland Coal Co.'s mines were rock-dusted with pulverized rock, 91 per cent of which will go through a 200-mesh screen. The former costs $5.80 per ton f.o.b. mines, Herminie, Pa., and the latter $5.95 per ton f.o.b. mines, St. Michael and Windber, Pa.

In the butt entries, room necks, and pillar workings 3 lb. of dust and in the panel and main entries 2.7 lb. of dust per linear foot was used. In rooms the dusting was carried to the last crosscut and the ribs, roof, floor and gobs received between 3 and 4 lb. per foot of room length.

During the period between September, 1924, and May 1, 1926, the Ocean company mines used 639 tons of limestone dust in the haulage entries, rooms and air-course barriers. Of this quantity, 462 tons was applied in the live workings and 177 tons in dust barriers. An average of 2.7 lb. of rock dust was applied per linear foot and re-applied over a total distance of 88.9 miles.

Dust Sampled Periodically

The mines receive periodic sampling, the scoop-and-brush method being used and the analyses of the samples being made by the volumeter method. The workings are reduced whenever, after visual inspection, checked by the volumeter analyses of samples, the need for this provision is indicated. All entries are sectionalized by placing 6-in. square numeral markers at 500-ft. intervals from the beginning of each entry.

It will be noted that many items included in the total cost are of a more or less permanent character, such as the cost of building and installing the barriers and the investment in two rock-dusting cars. These items total $5,842.06. This is equivalent to $0.0052 per ton of coal produced during the period under discussion.

Deducting these charges from the total cost of 10.9 mills, and taking into consideration that much less dust per linear foot of workings will be required in the future, also that the men have become more expert in applying the dust and that the new dusting machine is more efficient than the first one, the management feels quite confident that the future cost of rock-dusting will not much exceed 6 mills per ton of output.

There is a distinct economic return from rock dusting. As a result of the treatment, these mines have been relieved of a coal-dust penalty of 5c per $100 of payroll, in accordance with the Compensation Rating Bureau's regulations. On the average annual tonnage produced, this is the equivalent of two mills per ton, which would make the net cost of maintaining the rock-dusted condition of these mines about four mills per ton of coal produced.

Cost of Rock Dusting at Mines Nos. 1 and 2 of Ocean Coal Co., Herminie, Pa.

Total Cost of Labor and Material Used in Rock Dusting to May 1, 1926, Including the Cost of Two Rock-Dusting Machines and Sixty-Four Complete Sets of Dust Barriers Containing 177 Tons of Rock Dust.

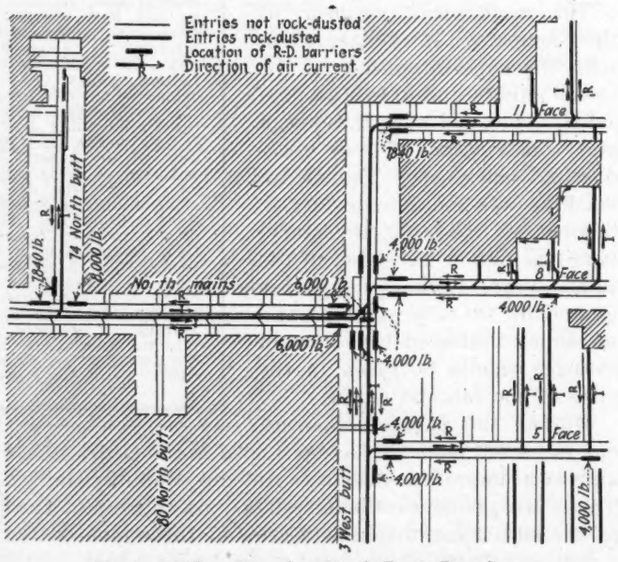
Cleaning up falls and removing loose rock for barrier installation. Mines Nos. 1 and 2	$871.18
Building 64 barriers	880.88
Making troughs	449.96
Painting barrier troughs and supports	167.10
730 8-ft. posts used in barrier installation	240.90
5,200 ft. of wood rails used in barrier installation	140.40
176.6 tons of rock dust loaded in troughs	1,025.21
Installing 64 sets of rock-dust barriers in Mines Nos. 1 and 2	$3,775.63
Labor of dusting Mines Nos. 1 and 2 as shown on daily reports	5,686.21
Construction of rock-dust machine put in service at Mine No. 2, Sept. 25, 1924	961.18
Construction of rock-dust machine put in service at Mine No. 2, Feb. 10, 1926	1,105.25
Miscellaneous material used in connection with rock-dusting (cable reel, hose, exhaust pipe, etc.)	473.33
Sampling Mines Nos. 1 and 2	165.00
Power used in operation of machines	86.17
Oiling and greasing	31.40
Dusting Nos. 1 and 2 mines to May 1, 1926, calculated from figures received from foremen	$12,284.17
Average Cost of Installing One Barrier Complete	
Cleaning for barrier installation	$13.61
Labor building barriers	23.41
Material used	21.97
Total	$58.99

Average Cost of Rock-Dusting in Cents per Ton—Tons Produced, 1,127,804.5

	Cost per Ton
Installing 64 complete sets of barriers to May 1	$0.0033500
Rock-dusting to May 1	.0050400
Labor and material constructing the rock-dust machine put in service Sept. 25, 1924	.0008500
Labor and material constructing rock-dust car in service Feb. 10, 1926	.0009800
Miscellaneous material used in connection with rock dust	.0004200
Sampling	.0001460
Power used in operation of cars	.0000764
Oiling and greasing	.0000278
Total	$0.0108902

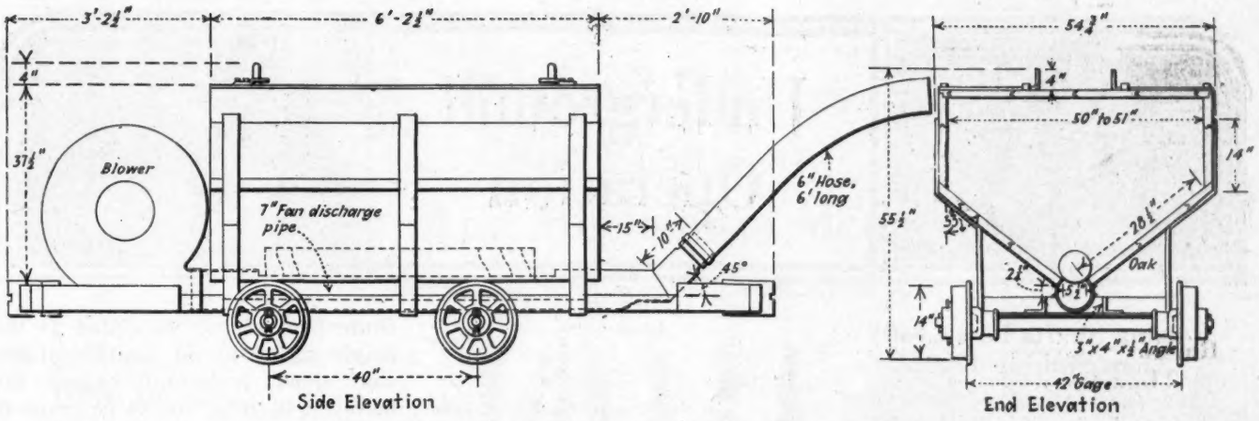
Summarized Costs:

Two rock-dusting machines	$2,066.43	
64 complete sets of dust barriers (including 177 tons of rock dust)	3,775.63	$5,842.06
Labor operating dusting machines	$3,006.61	
462 tons of rock dust applied by machines	2,679.60	
Miscellaneous materials (power, oil, etc.)	590.90	
Sampling and analyses	165.00	
Total cost of applying dust by machines		$6,442.11
Total cost		$12,284.17
Tons of coal produced during period of dusting		1,127,804.50
Average cost produced of barriers and dusting machines per ton of coal		5.2 mills
Average cost of applying dust by machines		5.7 mills
Total average cost per ton of coal produced		10.9 mills



Part of Mine Showing Rock-Dust Barriers

Third West Butt Entry, Ocean Coal Co., with adjacent entries. The plan shows which entries are rock-dusted and which are left without treatment. Note how carefully all intersections are provided with rock-dust barriers.



Rock-Dust Car; This Equipment Will Dust 8,000 Lin.Ft. in a Single 8-Hr. Shift

As much as 13,333 lin.ft. of entry have been dusted in 7 hr. In that time 20 tons of dust were distributed, about 3 lb. per lin.ft. The crew consisted of three men. This car is used at the Ocean Coal Co., mine, Herminie, Pa. The Berwind-White Coal Mining Co. has two machines at the Ocean mines, one at the Maryland Shaft and two at the Windber mines. Only one of the machines at the Ocean mine is of this improved type. That at the Maryland Shaft is also of the earlier type. The new type differs from the old mainly in the sizes of the fan and motor. It will be seen that the equipment is not elaborate.

Form 102-2-26

OCEAN COAL COMPANY

HERMINIE, PENNA.

RECORD OF ROCK DUSTING

MINE NO._____ _____192__

LOCATION	No. Feet Dusted	No. Sacks Used	No. of Men and Rate	No. Hours Worked	No. Lbs. Per Foot

_____ Mine Foreman.

This report must be kept each shift that Rock Dusting is done, and must be correct, and forwarded to this office immediately after work is done.

B. F. WILLIAMS, Supt.

Form Filled After Each Rock-Dusting Shift

This form shows the location in which the dust was placed, the number of feet dusted, the number of sacks used, the number of men and the wage rate, the number of hours worked and the number of pounds spread per foot of entry.

OCEAN COAL COMPANY

ANALYSIS OF ROCK DUST SAMPLES

SAMPLE PERIOD_____ TO_____

LOCATION	DATE DUSTED	DATE SAMPLED	ROOF AND RIBS		ROADWAY		REMARKS
			CONDITION	% ROCK DUST	CONDITION	% ROCK DUST	

Record of Samples Taken for Analysis

This form shows the location at which the mine was sampled, the date on which the place was rock-dusted, the date on which it was sampled, the condition of roof and ribs, the percentage of rock dust and similar data as to the roadway, with remarks. Unless samples are taken periodically and are carefully analyzed and the results recorded, neither the engineer nor the manager can feel assured that the mine is safe. Such matters should be automatic as far as possible. The manager or engineer should not have to note an unsatisfactory coating and should not have to order a sample taken and an analysis made. The record should come to his desk like those of other operating matters.

Form 101-2-25

OCEAN COAL COMPANY

OCEAN_____MINE RECORD OF ROCK DUSTING _____192

LOCATION	Date Dusted	No. Lbs. Used	Distance in Feet	Pounds per Foot	Time in Hours	Labor Cost	Material Cost	Cost of Handling Material	Total Cost	Cost per M Feet	Date of Analysis	Analysis
TOTAL												

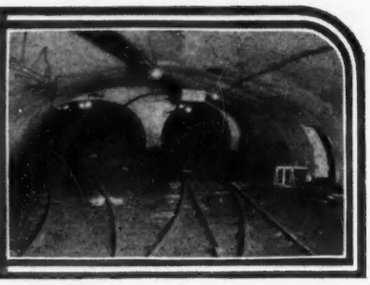
Monthly and Annual Report Compiled from the Reports of Separate Shifts

This is filed in the superintendent's office, and copies are forwarded to the general manager and the mining engineer. It gives a good record of the actual cost of the operation, both as to labor and material. The date of analysis of the dust in the entry and the analysis itself are added. From this record can be obtained figures aggregating the work done and its cost.

Rock-dusting also brings its intangible returns. It is no little compensation to know that the hazards of a coal-dust explosion have been reduced to a minimum. This knowledge adds appreciably to the peace of mind of employees and employer. There is comfort also in the thought that everything has been done that is humanly possible to discharge one's obligations, both legal and moral, both to the workers entrusted to one's care and to the property which has been entrusted to the management for safe and economic operation.

COAL AGE INDEX to Vol. XXIX will soon be ready for distribution. A post card addressed to the subscription department will bring you your copy.

Underground Operation



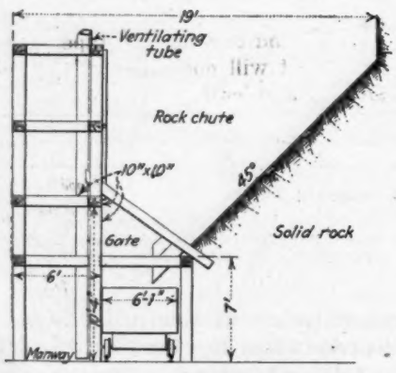
Raising Shafts Less Costly Than Sinking Them

I have frequently noted discussions in *Coal Age* on the advantages and disadvantages of raising a shaft instead of sinking one, which is the more general practice. As my experience, heretofore, in raising shafts had been entirely in igneous formations, I deferred any comment until I had experimented in stratified rocks. This opportunity was afforded me at Clarksville, Greene County, Pa.

I used only four men regularly on this work, one of whom was an assistant mine foreman. He had charge under the supervision of the mine foreman, W. C. Bauer, who gave it all the time his other duties would permit. None of these men had experience in rock work, though all were experienced coal miners and among the best loaders I had in my employ.

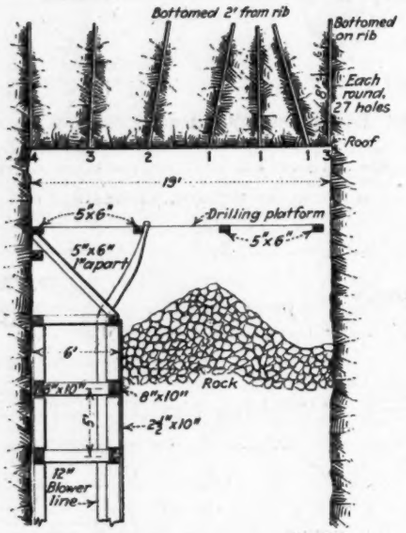
TIMBERED WITH 8x10 IN. PIECES

In raising the shaft, we followed practices that are almost standard for this class of work. A manway 4x10 ft., inside dimensions, was carried up as the place was raised, being constructed in the accepted manner of 8x10-in. timbers on 5-ft. centers, except that all 10-ft. pieces were hitched into the rock and plumbed. An 8x10-in. piece 4-ft. long was placed temporarily in the center of each set to resist the side pressure from the rock chute. This will be taken out when the work is completed.



How Rock Is Being Loaded

Large savings in handling rock are made possible by using chutes and dropping the material to cars below, instead of hoisting it out of the shaft in buckets, as is the practice when sinking.



Raising Shaft at Trumbull Mine

Figures opposite drillholes indicate the order of firing. This sequense was found best suited to this roof and to afford protection to the timbering.

On the side nearest the rock chute, oak boards 2½x10 in. were used for lagging. This chute, which measured 13x13 ft. without timbers, filled the rest of the shaft, the dimensions of the entire raise being 13x19 ft.

The shaft is now up 100 ft. and thus far has cost somewhat less than the usual sinking charge. We have never pulled more than 8 ft. nor less than 5 ft. per round of holes. Our walls are broken clean and not gouged out. When completed, we can timber up such strata as will not stand in the rock chute (which will be an intake airway), leaving the rest of the shaft untimbered.

MANY ADVANTAGES

The advantages of raising are as great in this district as elsewhere: No rock to shovel, more speed, less explosives used, cleaner sides, fewer men and consequently lower costs.

To raise a shaft, however, some one who is familiar with this class of work should be employed; the rock-chute plan should be suited to the height of raise; the location of the shaft should be carefully chosen; the holes for blasting should be properly timed; the ventilation should be adequate and care should be taken to avoid blowing out timber.

WILLIAM CALLEN, Superintendent
Trumbull Coal Co.,
Clarksville, Pa.

Cement and Clay Make Good Plaster for Brattices

In the Mulga mine of the Woodward Iron Co. we use a mixture of cement with ordinary red surface clay for plastering rock brattices. This mixture has proved more satisfactory than cement and sand. The mortar consisting of 1 part cement and 3 of clay is cheaper and easier to apply than the latter mixture. It sticks readily to the rock and does not crack after drying. It, therefore, makes an airtight job.

The standard practice in building brattices of ordinary mine rock is to construct two 18-in. walls each with a 6-in. hitch in the rib. The walls are placed 5 ft. apart and the space between them filled and packed. Where the roof is good, one wall is plastered on the outside, but where the roof is bad both outside walls are covered. The cement-and-clay plaster makes a good roof support for the walls.

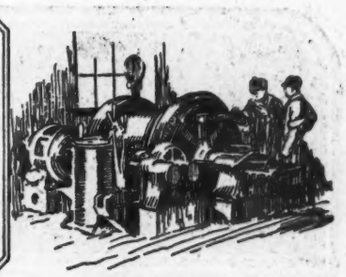
PLASTER LASTS WELL

The plaster seems to have lasting qualities. In the Mulga mine several walls which were plastered in 1920 show no deterioration of the coating.

Other standards at this mine pertaining to ventilation are that all doors must be set in concrete walls, must be hinged to the wall, and be self-closing. Overcasts are built of concrete reinforced with steel.

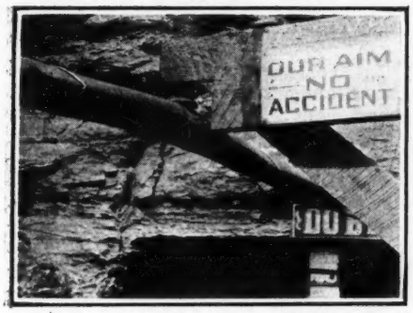
E. D. CLARKE,
Superintendent, Mulga Division.
Woodward Iron Co.,
Mulga, Ala.

Practical Pointers For Electrical And Mechanical Men



Wire Stays Hold Hose Guard Open for Trolley Wheel

Only a few years ago split hose found wide favor as a guard for trolley wire. The low figure at which condemned fire hose could be purchased and the small cost of its erection appealed to the mine officials. What troubled them was that the hose became limp and closed on the wire.

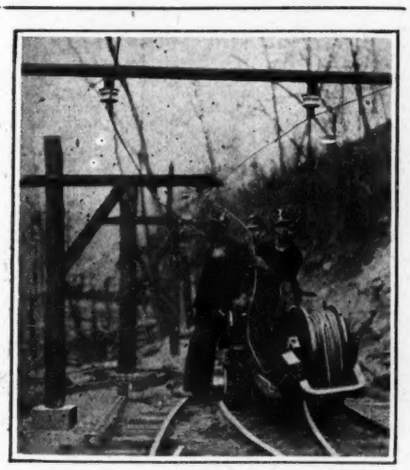


Stays on Hose Guard Near Drift

In the left foreground may be seen the shape in which the wire stays are made up and are clamped on the hose. The photograph was made at the portal of No. 3 mine, Coaldale operation.

The accompanying photograph shows how this was overcome at the mines of the Edgewater Coal Co., Pike County, Kentucky. The hose is held open by stays made of No. 9 galvanized steel wire applied at 3- to 4-ft. intervals. These are made in the form indicated in the illustration. They are fastened by pinching the ends with pliers so as to clamp over the edges of the hose.

A few other companies are using stays of the same type but made of flat iron and bolted to the hose near the bottom edges. When hose is thus held in proper shape, it serves much better as a guard for trolley wire.



Trolley Posts Held Plumb

Each post is set in a concrete base 13 in. square and extending 7 in. above the ground. The arms and posts have been painted with creosote. Mine 5-B of the Columbus Mining Co., at Allais, Ky., is the scene of this illustration.

Coil Making Greatly Speeded With Tape Spool

Slow and tedious is the work of taping armature coils by hand when no device is used to hold the tape. If sufficient length to cover one coil is cut from the roll, the loose end is a nuisance during the wrapping process. If, on the other hand, the tape is left attached to the roll and the roll passed around the coil, it is difficult to wrap the coil tightly and it is not easy to avoid dropping the roll.

These difficulties are eliminated and hand taping speeded up to approach that done with a machine, by the use of a simple device for holding the ball of tape. Apparently few of these hand tapers are in use. One of the few is shown in Fig. 1, a scene in the winding shop of the Edgewater Coal Co., Hellier, Ky. H. S. Ray, the armature winder who brought the idea to Hellier and made the taper, was "snapped" in the act of applying the outside wrapping to an armature coil.

Details of the device can be explained best by referring to the sketch, Fig. 2. Essentially the taper consists of a spool on which the roll of tape turns as it unwinds and on which there is a means of keeping the tape under tension.

The sides of $\frac{1}{2}$-in. fiber are of a diameter slightly larger than the roll of tape to be used. The friction pins over which the tape slides are made from No. 6 copper wire. At one end these are filed to form a shoulder and are riveted to one of the fiber side pieces. The other ends of the pins fit loosely through holes in the other side piece. A bolt through the center holds the sides in place.

Fig. 1—Using the Tape Holder

From the position shown, the holder containing the roll of tape is flipped around the armature coil. It is then caught, given a pull to tighten it; more tape is then paid out after which the holder is given another flip.

In taping a coil, only one hand is used in manipulating the holder. From the position shown in the photographic illustration the holder is given a flip and swung freely around the coil for most of a turn, then caught, and pulled slightly to tighten the turn and to pay out sufficient tape for the next wrap. The operator uses his other hand to hold the coil, and to pinch the tape on the wire so it will not loosen if the tension is accidently slackened.

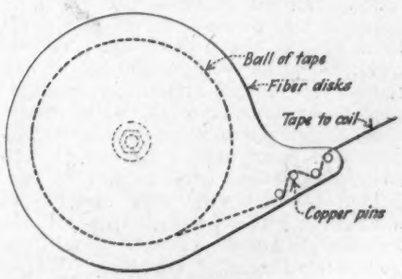
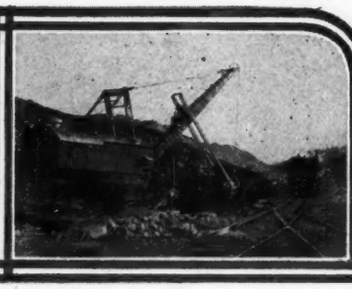


Fig. 2—Details of the Device

The side pieces of $\frac{1}{2}$-in. fiber have a projection in which are four cross pins that make it necessary to apply much tension to pay out the tape.

News Of the Industry



No Sign of Break in British Strike; Trades Union Congress with Miners Against Baldwin Legislative Program

A way out of the British coal strike, now in its third month, appears no nearer than it did when the miners first deserted the pits. The permissive eight-hour bill, introduced by the Baldwin ministry, passed its second reading on June 29 by a vote of 355 to 163 and its third and final reading on July 1 by a vote of 322 to 147. It now goes before the House of Lords. These votes were taken only after scenes of disorder and hooliganism which shocked old-time parliamentarians.

Labor leaders have given no indication that they are ready to retreat from their position although Ramsay MacDonald publicly rebuked the rowdy tactics of some Labor members in Parliament. No olive branch has been extended by the mine owners. Optimists saw a way out in remarks of Premier Baldwin last Thursday when he declared that, "if the Miners' Federation accepts the Coal Commission report, with all that report implies, I believe that even now a settlement satisfactory to both sides may be reached."

This optimism, however, was short-lived. Winston Churchill, Chancellor of the Exchequer, declared that the mines must run on the eight-hour basis and insisted that there had been no weakening in the government's attitude. This interpretation of the Premier's statement came after Mr. Baldwin, earlier in the debate on July 2, had shaken his head in answer to a question of Capt. Wedgewood Benn as to whether the government was prepared to accept the Royal Coal Commission report if the Miners' Federation would accept it.

Reorganizing the Industry

Mr. Churchill asserted that the government was doing everything it could to carry out the Commission's recommendations on reorganization of the industry. It was appointing committees, he explained, to take up the questions of pit committees, railroad transport and joint selling agencies. The recommendations with respect to municipal trading were still under consideration. The present state of the national finances did not permit the purchase of mining royalties. Wages and hours of labor, he said, must be settled by the workers and the mine owners.

The breach between the Trades Union Congress and the Miners' Federation over the conduct of the general strike has been closed and the former body has lined up behind the miners in the fight on the government legislative program. The Trades Union Congress, in a statement issued a few days ago, charged the government with trying to starve the miners into submission. The Federation at the same time issued a statement declaring the miners had nothing to consider unless the government withdrew its eight-hour bill and made "really effective" proposals to reorganize the industry.

Executives of the Miners' Federation are making strong efforts to paint the eight-hour bill as a backward step. "Once you go back to eight hours," declared Herbert Smith, president of the Federation, "you will not get back to seven hours for fifty years; never mind five. If we have to choose, through being driven to it, between a reduction of wages and a longer working day, then my vote will go for the reduction of wages. We have a chance of fighting for more wages."

To some of the labor leaders the eight-hour bill is an insidious attempt upon the part of the Premier to induce a large part of the miners to accept the government program. It has been estimated that about two-thirds of the workers could avoid a reduction in wages by agreeing to the longer working day. Strong appeals are being made to these men to stand firm so that the other third will not be compelled to submit both to a reduction in wages and a lengthening in hours.

Strikes Increase Budget

The coal and general strikes have caused an increase of £3,433,000 in the government budget. Supplementary estimates made public on Monday of this week ask for £433,000 to meet expenditures and commitments incurred in connection with the general strike. These include £119,000 for food organizations and £16,000 for the *British Gazette*, the government daily published during the strike.

The biggest item, £3,000,000, is to be used as a revolving fund for the purchase and importation of coal to keep public utilities, food-producing and other essential industries functioning. Coal so purchased will be sold to these consumers at a cost to cover the price and transport charges and administrative expenses. The money so received will be employed in making additional purchases.

Wide World Photos

"Practical Pointer" from England; Miner Uses Bicycle Wheel for Sheave Wheel

Note the headframe and the kibble. In some places a bar is laid over the hole as a headframe and from it is strung a small pulley block as a sheave wheel and thereby coal is hoisted. This new plant and sinking is in the new-found field at Dudley, Worcestershire, England.

Management Association Studies Duties, Qualifications and Pay of Foremen

By Staff Correspondent

The Production Executives' Division of the American Management Association, meeting at Silver Bay, Lake George, N. Y., spent the afternoons and evenings of June 30 and July 1 and the morning of July 2 in studying the responsibility, qualifications, development and compensation of foremen. Though most of the industries represented were manufacturing, yet an indication of the interest which the coal-mining industry is giving to the problem of management was shown by the presentation of an address by H. S. Gilbertson, director of personnel of the Lehigh Coal & Navigation Co.

The function that foremen play in the different industries and their development was discussed from many angles. One member from his experience thought that the foreman was a mere figurehead reduced to the routine of doing what he was told to do according to plans and specifications.

Other representatives of large corporations stated they looked upon their foremen as managers and held them responsible for production in quantity, quality and cost. They agreed that the staff officers existed only to aid the foreman, who is a line officer, to carry out effectively the prearranged program of the engineering, planning and executive departments.

Must Have Native Ability

They also agreed that in the final analysis a literal compliance with the company's plans of administration was not enough; the foreman must exhibit native ability to handle his labor and to interpret the aims, ideals and policies of the management to the workers, with whom he is in direct contact. As such ability was needed the problem of selecting such a man from among the workers in a large factory was a serious one.

Many of the speakers agreed that the training and developing of foremen after their selection was but a minor problem. F. T. Cox, works manager of the West Lynn Works of the General Electric Co., stated that the whole training of a foreman should have but one viewpoint and that was to make better foremen for the company. Any man who truly represented the best interest of the firm would prove in the long run of benefit to all the workers under his direction. Psychological tests and rating methods were used as selective measures.

H. G. Ellerd, of Armour & Co., discussed in detail the method of rating supervisors which his company uses. This method does not attempt to put numerical values on the several qualifications. J. W. Dalzell, of the Ferro-Concrete Construction Co., stated that his firm used a rating system based upon that used by the Army. Several of the speakers agreed that rating methods of psychological tests had possibilities for development, but did not believe that they could replace good judgment in the selection of men.

In regard to the training and development of foremen, M. J. Kane, of the Western Electric Co., said that in his methods of training foremen he tried to keep in mind that "telling is not teaching and information is not education." The method used by Mr. Cox, of the General Electric Co., was that of conferences on the company's time, which were attended by the heads of other departments with whom the foremen were in contact. These conferences endeavored to tie in good business principles with the foreman's actual daily work as to quality, production, costs and labor.

Instills Company Viewpoint

H. S. Gilbertson, of the Lehigh Coal & Navigation Co., stated that in general his training program agreed with that of Mr. Cox. He tried to tie in with the foreman's work his responsibility to the company for production and costs and tried to instill in the foremen the viewpoint of the company of which they were the representatives.

Mr. Gilbertson's remarks as summarized were as follows:

"If you go back fifty or sixty years ago you will find a time when the foreman was a real czar in his operations. He was put in charge and asked to get results. When he had finished, the owners found the property in bad condition. Instead of getting 60 per cent extraction they got 50 and sometimes not more than 33⅓ per cent. The foremen in their great anxiety to get coal quickly and cheaply drove headings without regard to the future of the property. This was largely because in those days the foremen were asked merely to get results. They *did* get them, but of a kind that brought trouble later to the company.

"When the practice of assisting the foreman in his problems is first attempted two comparatively simple ends must be kept in mind. One is to get the foreman to absorb the company viewpoint, bearing in mind, however, that all through his generation he has been in almost unrestrained authority. Our company is 106 years old. You can readily see why our foremen should resent any attempt to curb this time-honored authority and these new methods of getting results.

"The second thing to be undertaken is to get those men who have been in mines all their lives to see that something besides experience is needed to make efficient men, and that the company has a long-vision policy that is not bounded by the confines of any single day's work. We spent a year in studying the problem and in analyzing the reactions of each individual to find what would fit him and would fit the foremen as a class.

"We felt that training consisted of a number of things, among which was an atmosphere of sincerity. It seemed that in the old days the foremen tried to keep all they could a secret from the company, and the company kept costs, profits and all its problems a secret from the foremen.

"We decided to publish a company paper and in this publication we discussed costs of operation, management problems, sales and production. In fact, we think we went further than any other company in giving out information of this sort which has heretofore been veiled in impenetrable secrecy. This paper was one of the means whereby we interpreted the company's standpoint to the employees. Another means we used were conferences of small groups of ten or twelve foremen. At these conferences we discussed our problems at length. Later we published our own textbook on the principles of the foreman's job, covering subjects purely pertinent to our local conditions.

Conferences Catch On

"We have not yet been able to measure in this short time the results of these conferences. But we have been able to see an improvement of the men's attitude toward the company and toward their jobs. The conferences were started during the early part of the last strike. The men were approached to see if they would give two hours per day of each month on company time to confer on these subjects. They became so interested in the matters discussed that they were willing and even anxious to spend more time at these conferences. The results of these discussions were summarized and then again boiled down into a general summary. The results so far gained have led us to believe that we are on the right track.

"We have been trying to teach these men of limited education something of the power of analysis, how to analyze their job, to figure costs and to estimate profits."

Industries Have 23 Days' Supply of Coal June 1

Coal stocks in the hands of industrial consumers on June 1 totaled 28,196,000 tons, according to the National Association of Purchasing Agents. Based on the average rate of consumption during May, the supply on June 1 would last 23 days. This compares with 36,876,000 tons on May 1, or sufficient for 26 days.

Consumption during May totaled 35,213,000 tons, as against 39,048,000 tons in April.

Comparative Estimates of Output, Consumption and Stocks

(In Tons)

	Output	Industrial Consumption	On Hand In Industries
January..	52,328,000	41,892,000	68,399,000
February.	48,654,000	43,747,000	66,190,000
March....	54,038,000	46,313,000	60,014,000
April.....	48,008,000	39,048,000	49,150,000
May.....	47,113,000	35,213,000	36,876,000
June.....	.....	.....	28,196,000

Days' Supply on Hand June 1 In Selected Industries

Steel plants	26
Electric utilities and coal-gas plants	37
By-product coke plants	11
Railroads	23
Other industries	18
Canada	53

Union Rally Indorses W. Va. Strike Call and Move to Impeach Judge

To encourage carrying on the strike called for July 5, a convention of the union miners of District 31, recently created and embracing the northern West Virginia field, was held last week and, according to Van A. Bittner, international representative of the United Mine Workers in that field, there were about 1,000 delegates present representing approximately 200 locals.

The convention adopted resolutions indorsing the strike call and discussed plans to compel recognition of the union by forcing a suspension, if possible, of the open-shop operation of of about 180 mines in the northern part of the state.

One resolution adopted criticized "propagandists" and newspapers that have condemned the United Mine Workers for erecting barrack buildings for the miners and their families. In another resolution the move of the officers of the union to obtain the impeachment of Judge I. Grant Lazelle of the Circuit Court of Monongalia County was given the stamp of approval. A third resolution condemned the Monongalia County Bar Association for passing a resolution of confidence in Judge Lazelle, who recently refused to grant the union an injunction to prevent the open-shop operation of certain mines in the Monongalia field.

James L. Studdard, of Fairmont, is president of District 31 and Fremont Davis is its secretary, but the strike is in charge of Van Bittner.

That the union is staking a good deal on its latest call is shown by the fact that it proposes to bring such labor leaders as William Green, president of the American Federation of Labor; John L. Lewis, president of the United Mine Workers, and Philip Muray, vice-president, into the field to help conduct a vigorous campaign.

Despite the union's activities, operators of non-union mines are confident that there will be no material change in the present situation. The producers assert that as a whole the miners working in the open-shop mines are well satisfied with wages and working conditions and that therefore no material defection will be observed, especially since many of the miners deserted the union in order that they might go to work and work regularly.

Burns Bros. Receipts Mount

Burns Bros., New York City, report that sales are running close to $1,000,000 a month ahead of last year, in spite of the fact that a record business was done last summer in preparation for the anthracite strike, and the outlook for the second half year is favorable. Motorization of delivery service this spring has resulted in further reduction of operating expenses, which foreshadows an increase over the net income of the year ended March 31, when the net of $2,420,779 was equal to $15.17 on 97,365 shares of Class A common stock and $7.17 on 97,367 of shares of Class B common stock.

Pipe Chute Down Mountainside

The coal from No. 4 mine of the Coaldale operation of the Edgewater Coal Co. reaches the tipple by way of this 36-in. pipe. As might be assumed from the use of this method of transportation, the coal goes to byproduct ovens. The company is a subsidiary of the Allied Chemical & Dye Co.

West Virginia Coal & Coke Adds to River Facilities

The West Virginia Coal & Coke Co. purchased the Logan Dock Co. at Huntington, W. Va., on June 21 and will substantially increase its coal-shipping facilities by way of the Ohio River. With the additional river facilities the company plans to ship from 90,000 to 110,000 tons of coal every month, the 26th Street loading tipple having a loading capacity of two and one half million tons a year. A new tow-boat is being constructed in addition to one that the company already owns and another under lease. Three tracks are now available at the 26th Street plant but trackage facilities will be enlarged by the addition of two tracks, affording a yard capacity of 150 cars.

The City Commission of Huntington has granted a twenty-five year franchise, supplementing a franchise granted the Cleveland-Philadelphia Coal Co., A. C. Ingersoll and the Logan Dock Co. two years ago. The West Virginia company in 1924 acquired the Main Island Creek holdings in Logan County and the holdings of the Hutchinsons. Thirty steel barges were purchased some time ago.

"Coals of Oklahoma," a bulletin which has been in the making for 18 years, will be published soon by the Oklahoma Geological Survey, according to Dr. Charles N. Gould, director. C. L. Cooper, survey geologist, is now in Henryetta collecting the final data for the bulletin. Dr. Gould, who was the first director of the Survey, started collecting material for the publication in 1908. Other directors who succeeded him continued to accumulate material concerning Oklahoma coal, but it remained for Dr. Gould himself to authorize the final printing of the treatise.

Accident Prevention Parley Enlists Leaders

A preliminary program for the industrial accident prevention conference to be held at Washington July 14-16, has been prepared by the U. S. Department of Labor. The general subject will be the value of statistics for accident prevention. Ethelbert Stewart, U. S. Commissioner of Labor Statistics of the Department of Labor, will preside at the opening session, July 14, at which a letter will be read from the President and an address made by Secretary of Labor Davis on the purpose of the conference.

Among the other speakers will be Frank Morrison, secretary of the American Federation of Labor, on the workers' interest in safety problems; W. W. Adams, statistician of the U. S. Bureau of Mines, on statistics for accident prevention in mines; Secretary of Mines Joseph J. Walsh, of Pennsylvania; W. H. Rademacher, of the Edison Lamp Works, on improved lighting as a factor in accident prevention; R. B. Morley, of the industrial accident prevention associations of Toronto, on the work of Canada in accident prevention, and R. H. Lansburgh, Secretary of Labor and Industry of Pennsylvania, on the work of state organizations in contributing to national accident prevention statistics.

Newport News Coal Traffic Heaviest in History

The Chesapeake & Ohio coal piers at Newport News, Va., handled more coal in June than has ever passed over any terminal in Hampton Roads in any month. The Newport News piers dumped 908,207 tons, or 75,000 tons better than its previous highest mark.

The total for the three piers in the month was 2,008,545 tons, the second highest dumping figure in the port's history. In June, 1921, during a coal strike in Great Britain, the combined dumpings amounted to 2,210,826 tons.

A contract with the British government for high-volatile coal was largely responsible for the big increase in coal dumpings last month, the Newport News piers handling the bulk of that movement until the business grew so heavy it was compelled to barge coal to the Norfulk terminals to be dumped. The Norfolk & Western piers dumped 658,085 tons and the Virginian piers 442,253 tons last month.

Coincident with the marked advance in coal dumpings came an advance in ocean freight rates to United Kingdom ports. The cargo rate jumped from $2.75, or thereabouts, to $3.75 and $4, and there are indications that it may go even higher.

Following the contract for 1,000,000 tons of high-volatile coal to be moved through Hampton Roads, several other large orders from British interests were received, which have stimulated the high-volatile coal market. The movement became so heavy late in June that the Chesapeake & Ohio was compelled to embargo all coal movement to Newport News, but lifted the embargo July 1.

Harmony Between Coal Industry and Bureau of Mines Likely to Be Aided By the Sidetracking of Legislation

By Paul Wooton
Washington Correspondent of *Coal Age*

Failure of coal legislation providing for certain compulsory statistical returns to the Bureau of Mines is regarded by the National Coal Association as a fortunate development in so far as concerns the relationship of the Bureau and the industry. For sixteen years the Bureau has worked successfully with the coal producers on a voluntary basis. It is believed that much more has been accomplished in safety work, for instance, through co-operation than would have been the case under a mandatory statute. Many are of the opinion that one agency cannot carry on successful co-operative programs at the same time it is exercising mandatory powers over the same industry.

Regardless of any benefit that might redound to the coal producers from complete statistical returns, the gathering of these figures by compulsion would be regarded by the operators as the beginning of federal regulation. They point to the fact that the Interstate Commerce Commission had 174 employees in 1906, and that by 1926 the number had increased to 1,774 and the limited powers at first possessed have grown into complete regulation.

While there are some operators who believe the Bureau really is anxious to obtain the authority to demand coal figures, those in close contact with it declare there is nothing to justify such a conclusion. In fact, officials of the Bureau for years have lived in apprehension of some assignment of regulatory powers. They recognize that it probably would demoralize their co-operative work with the industry.

Want Continued Harmony

Though the proposed coal legislation of the late Congress failed, the very fact that the Bureau of Mines was mentioned as the agency to handle the suggested powers aroused an unfriendly feeling which will take time to overcome, regardless of the fact that the members of the Bureau's staff stand high in the opinion of the industry. In case Congress at some future time should require compulsory returns from the coal industry, friends of the Bureau hope that the powers will be lodged with another agency, even if that should make necessary the surrender of its present statistical work on coal. They feel that it would be little short of a calamity were the mining industries to form an opinion of the Bureau of Mines such as they hold toward the Federal Trade Commission.

Whether or not the Bureau will succeed in its plans to provide more comprehensive coal statistics from the figures it can get on a voluntary basis will depend largely on getting the information promptly and without interruption. News in figures is like the news of the day. Its value depends considerably on its prompt presentation. Continuity is essential to the comparison. These features are regarded as being of greater importance than the percentage of returns.

It is not necessary to have 100 per cent returns, as typical cross-sections can be taken which will show the trends. In many commodities it now is possible to know long in advance what is going to happen. It is expected that some such service can be extended to those interested in coal when the organization of the Bureau's new economic branch will have been completed.

EDITOR'S NOTE—*The foregoing Washington letter reflects certain views of official Washington. Due to the fact that policy as a rule prevents government officials from permitting their views being quoted directly, the authority for these reports is necessarily somewhat vaguely referred to. The views reflected are not those of any one group of officials, but of different men, in the legislative and executive departments. There is no necessary connection between their views and* COAL AGE *editorial policy; neither do they necessarily represent Mr. Wooton's personal views. It is felt that the opinions thus faithfully reflected will be of great interest to the industry. Where opinions are cited from sources outside of the government, the source will be specifically stated.*

Stream-Pollution Conference Sidetracked

The proposal to hold a nationwide conference on stream pollution has been abandoned, at least for the time being, by the National Coal Association. A special committee of the association, to which was referred the question of the advisability of holding the conference, met June 26 at the office of the Hillman Coal & Coke Co., Pittsburgh, Pa., and decided, after an extended discussion, that the scheme would be inadvisable in that it might make a national issue out of what appears at present to be a local question.

The committee recommended, however, that the National Coal Association keep in touch with associations in other lines of industry directly interested in stream pollution, in an effort to accomplish as much as possible by concerted action.

The members of the committee who took part in the discussion were T. W. Guthrie, president, Hillman Coal & Coke Co.; W. H. Cunningham, president, Burgess Branch Coal Co., Huntington, W. Va.; H. N. Eavenson, president, Sullivan Pocahontas Coal Co., Pittsburgh, and Marshall J. H. Jones, vice-president, Bertha-Consumers Co.

Associations Indispensable To Industry, Says Gandy

"Associational work has reached such a state today that no man can afford to remain on the outside," said Harry L. Gandy, executive secretary of the National Coal Association, in an address June 29, at the 40th annual meeting of the Illinois and Wisconsin Retail Coal Dealers' Association. "I think we shall live to see the day," he continued, "when the man who is not a member of his respective trade association will be regarded as an outcast. As the business world is now functioning it becomes increasingly necessary for those responsible for the management of different lines of industrial activity to work through their respective trade associations. Only through such affiliation can industry articulate, and scarcely a day passes but what occasion arises for articulation respecting one or more of the various problems which press for solution.

"The urge for the closest cooperation possible between the several branches of the coal industry is consonant with sound economics. It is not an exaggeration to state that, without its present associations, the coal industry would be in a state of utter demoralization, and this applies (somewhat, of course) to other lines of trade and industry as well. Coal, however, is such a bone of contention, whether for the sake of the meat on it or its marrow, that 100 per cent association membership in its several branches is imperative. Economic conditions impel co-operation and the demand for more complete and more intensive association affiliation, as a means of constructive work, as well as a fortification against destructive forces, is rapidly growing."

Air Blast or Explosion at Peach Orchard Mine?

Seven miners lost their lives and eight others were injured July 4 at the Peach Orchard mine of the Glen Alden Coal Co., Parsons, Pa., as the result of an air blast or explosion of gas. As the men were thrown violently against the walls of the mine and as those first recovered were not burned it was thought an extensive cave had caused the air blast, especially when the fact is considered that the explosion occurred in a place which was regarded as non-gaseous. The last two victims removed are said to have been burned: therefore it is questioned whether it was an explosion and not a cave that caused the deaths and injuries or perhaps a combination of these causes. Not a little damage was done to the mine and it was almost twelve hours before the last victims were recovered. The men were engaged in removing pillars when the blast occurred.

Bureau of Mines Likely To Issue Marketing Data; Seeks Trade Bodies' Aid

The broad problem facing Director Turner and Assistant Director White of the Bureau of Mines, in organizing the economic work which is about to be undertaken, involves close co-operation between the economic and technologic branches so as to bring the resources of the engineer to bear on the business problems of the industry. Provision for the study of reserves as a factor influencing price and future cost and the co-ordination of statistical work with the commodity studies are being considered.

The type of internal organization which is suggested as adapted to carry out this idea is a series of commodity divisions supplemented by a service division responsible for the co-ordination of statistics and for other service functions such as special studies involving a number of different commodities.

The policy of the Department of Commerce of selecting men from the industries to head the commodity divisions probably will be followed. It is recognized, however, that many of the men already in the Bureau of Mines service would be acceptable to industry for such assignments. The function of the commodity division would be to act primarily for the department in the promotion of commerce in the industry it represents. To do this the division would endeavor to be the center of information, particularly as to markets and sources of supply, and would develop current market information and gather current statistics. The service would be such as to give the industry the benefit of current developments before the news is cold. In this work the trade associations will be relied upon to a great extent.

Problem of Outlet Presses

Recognizing that the problem of the mineral industries as a group is to find outlets for its products, it will be necessary for the commodity division to go beyond the statistics of production such as were issued by the economic division of the Geological Survey, which was transferred to the Bureau of Mines. The quest for a market for surplus output is the outstanding problem of coal, copper, zinc, petroleum, and many other mineral products. It is recognized there is a need for a study of distribution and consumption and an analysis of existing markets and marketing methods as well as the promotion of new uses and the expansion of markets.

There is some thought that it would be wise to assist the commodity divisions in these studies of distribution and marketing by setting up a special unit in the service division to furnish expert assistance on problems with which the commodity chiefs may not be familiar. There is a science of marketing which has its principal application to the selling problems which are common to all business. There is no disposition to limit the force to engineers or representatives of the trade. It is hoped that expert help may be obtained in the form of specialists in marketing research, in accounting and in business organization, going if necessary to the university or the large advertising houses that have made a scientific study of these fields. The experts of this special marketing unit then would be available for assignment to the commodity division, working in co-operation with the commodity chiefs on marketing surveys and on the particular problems that may require such assistance.

This particular activity is new for the Bureau of Mines, but the Bureau now is a part of the Department of Commerce and probably will assume responsibilty for trade-promotion activities in so far as mining is concerned. This new work will require additional appropriations above those already allotted for the technical work for the collection of production statistics. Thus a comprehensive program depends, in part, upon the attitude of the Director of the Budget and of the Congress.

Another Hazard Appears In Coal Industry

It takes a long time for a coal miner to dig enough coal to provide a living for himself and a family and save $14,500, but that is what Michael Bombash, a thrifty miner residing at Beaverdale, Cambria County, Pa., did. Then, after all long years of toil and saving, Mike deliberately traded his savings for a little handbag filled with potatoes which cost him nearly $1,000 each.

Michael fell prey to a gang of swindlers. He had $12,000 in the Beaverdale bank and $2,500 in a Johnstown savings bank. He placed both his confidence and his cash, which he drew from the banks, in the hands of a stranger, who offered to let the unsuspecting miner in on a scheme by which he "could double the money." In company with his newly-made friend in high finance, Mike took his cash to Pittsburgh, where he was introduced to a number of other men anxious to help in the scheme of "doubling" Mike's money.

When Mike handed over his $14,500, he was given a handbag which was to contain $29,000. Mike took the bag and departed for Beaverdale. When he opened his satchel after arriving home, he was shocked to find that the bag contained only potatoes. Although "spuds" are high in price at present, Mike paid considerably more than the average prevailing quotation.

Inspectors to Meet in Charleston.—The Mine Inspectors' Institute of America will hold its next annual meeting in Charleston, W. Va., in April, 1927, according to an announcement last week by Robert M. Lambie, chief of the West Virginia Department of Mines, who formerly was president of the organization.

Open-Shop Output Outstrips Union Total in Pittsburgh

Coal output by companies operating open-shop in the Pittsburgh district is exceeding that of the union commercial companies of this former union district week by week this summer, according to a statement issued by the Pittsburgh Coal Co. During the week ended June 26 the total production of 19 mines of 8 companies working open shop was estimated at 116,000 tons. Of this amount, 63,262 tons was produced by 11 mines of the Pittsburgh Coal Co.

Total output of the union commercial mines for the same week, according to Pittsburgh Coal Co. officials, was approximately 75,000 tons. This estimate takes no account of captive mines.

In figuring its own tonnage in this estimate the company counted only its 11 open-shop mines in the Pittsburgh district which formerly were union; not including a non-union operation in Kentucky, one in the Westmoreland non-union field and two mines at Pomeroy, Ohio, which began the present open-shop movement more than a year ago.

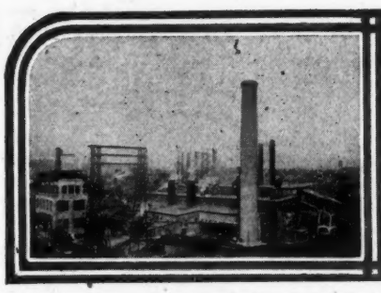
Union production has slackened, but more non-union mines are opening. Pittsburgh company officials estimate that 5,000 miners are now working on the open-shop plan in the Pittsburgh district, as contrasted to an average of 3,000 miners a day in the union commercial mines. This total of 8,000 miners in the commercial mines compares with 40,000 before the Jacksonville wage scale almost killed the industry here. The normal weekly production of all the mines reporting to the Pittsburgh Coal Producers' Association a year ago was 629,880 tons.

Each of the 11 mines of the Pittsburgh Coal Co. established a new output record during the week ended June 26. The tonnages for each mine are: Banning No. 1, 6,298; Banning No. 2, 8,688; Midland, 9,895; Montour No. 10, 9,210; Mansfield, 1,637; Warden, 9,254; Dickson, 4,476; Euclid, 3,399; Somers No. 4, 1,157; Ocean No. 5, 5,450, and Montour No. 9, 3,798. Montour No. 10 set a new daily mark for all the non-union mines when it loaded 2,110 tons in one day.

British Export Firm Bankrupt

W. H. Bowater, Ltd., prominently identified with the coal industry of Great Britain for the last fifty years, has been placed in the hands of a receiver by Barclay's Bank, debenture holder, according to advices from England. The Bowater firm's activities are world-wide, offices being maintained in all the principal cities of Great Britain, in addition to interests in South America and South Africa. The company is represented in the United States by W. H. Bowater, Inc., 17 Battery Place, New York City, managed by Harrison G. Ecker.

Edward Bosley has been appointed receiver for the debenture holders, according to a statement by W. H. Bowater, managing director of the Enlish concern, who said: "The coal strike has most seriously affected us, but we are carefully considering means of reconstruction by which the business can be continued."



News Items From Field and Trade

ALABAMA

Illinois Central Seeks Coal Traffic.—It is reported that the Illinois Central R.R. has under consideration an extension from its Durant-Aberdeen (Miss.) line to have a terminus at or near Winfield, Ala., and surveys are being made looking to a consummation of this project. The object of the extension, if made, will be to enable the Illinois Central to share in the movement of coal from the Walker County field which it has heretofore participated in through its connections. Recent transportation alignments are said to have deprived the road of a large amount of this revenue.

First-Aid Meet Goes Over Big.—Alabama's eighth annual first-aid contest, to be held July 10 in the Municipal Auditorium, Birmingham, promises to be the largest and most successful ever held in the South. Indications are that about 60 teams will compete. The contests will be in four divisions: For white men, colored men, ladies and Boy Scouts. Team prizes will be awarded in each division and individual awards will be made to each member of the first and second highest scoring teams in each division.

The County Coal Co., of Alabama, Inc., has been named in an involuntary petition in bankruptcy filed in federal court at Birmingham, in which creditors for a small indebtedness against the corporation allege preferential payments. The company operates mines near Grant's Mill, in the eastern end of Jefferson County, which were developed about six years ago. Offices are located in Birmingham.

Frisco Contracts for Tipple.—The Frisco railroad is reported to have let the contract for a large electrically operated coal tipple at its wharf at Pensacola, Fla., and will expend about $10,000,000 on this and other improvements there, which includes shops, round houses, etc. The Frisco railroad penetrates the heart of the Walker County coal fields and will add materially to the importance of Pensacola as a bunker and export point through its acquisition of the Birmingham, Muscle Shoals & Pensacola line, which gives the line direct connection with this port over its own rails.

COLORADO

Coal Output Below 1925 Rate.—Colorado mines produced 619,519 tons of coal in May, or a total for the first five months of the year of 4,105,665 tons according to James Dalrymple, state coal mine inspector. This production figure shows a decline of 54,466 tons over the same period a year ago. The report reveals that 9,184 men were employed in the mines of the state during the month covered by the report, while the average for the five months period is given at 11,513 men, with an average operation of 70.7 days for each mine during the first five months of the year.

ILLINOIS

No Aid for British Strikers.—The coal miners' union at Marion has turned down a proposition to send $25,000 from the Illinois miners' union to help the striking miners of Great Britain. All of the unions in the state voted on the proposition at the same time and it is understood that few have indorsed the scheme.

The Groveland Coal Mining Co. has increased its capital stock from $1,200,000 to $1,300,000.

May Output Close to Average.—Operations in the southern Illinois coal fields are holding up fairly well during the current off season. Ten of Franklin County's 20 producing mines are working an average of three days per week and 6,000 of the country's 15,000 miners are employed on this part-time basis. Figures compiled by the Illinois Department of Mines and Minerals show that during May 152 mines of the state produced 3,745,311 tons of coal and employed 47,204 men. The tonnage in May, 1925, was 3,861,331 and in May, 1924, 3,714,795. In May the Franklin County mines produced 763,852 tons; Macoupin County mines 500,647 tons and Williamson County 370,789 tons. The April tonnage of the Illinois mines was 4,647,003 and in March 5,694,683 tons. Strip mines produced 287,367 tons in May last.

KANSAS

The Western Coal & Mining Co. has announced that production will start in its new mine No. 22, near Arma, in August. The hoisting and air shafts have been sunk to the coal at a depth of 265 ft., and the bottom working has been opened. Only one mine in southeastern Kansas is deeper than Western No. 22; that is Sheridan No. 19, which goes down 287 ft. The new Western mine, which will employ between 350 and 400 men, is the second operation to be opened by the company this year. In March it opened its mine No. 23, near Minden, Mo. This shaft is 60 ft. deep and employs 125 men. With the opening of No. 22, the Western company will have five mines producing in the Southeastern Kansas field: Nos. 22, 23, 13, 15 and 20. Mines Nos. 16, 18 and 19 have recently been worked out and mines Nos. 14 and 21 are being worked by others under lease.

KENTUCKY

To Reopen Mayking Plant.—J. D. Raybould, T. E. McConnell and A. B. Ewen, the latter of the Ace Coal Co., Letcher County, near Whitesburg, have organized the Cameo Coal Co., after taking over the old plant of the Mayking Coal Co., at Mayking, which is to be reopened soon. A new bridge connecting the plant with the main line of the Louisville & Nashville Ry. and other improvements are being made, as the mines had been idle a long time.

Idle Mines to Resume.—The Hardaway interests, of Virginia, have arranged to resume operations soon at the mines of the Montgomery Creek Coal Co., near Vicco, on Carrs Fork, and to reopen them shortly. The mines were sold at a receiver's sale a short time ago for $20,000, although they represent a cost of about $200,000 for equipment.

Pineville Station Delayed.—The mine-rescue station for Pineville, which R. R. Robsion, Representative from eastern Kentucky, had announced would be established during June, will be placed in service some time during the fiscal year starting July 1. The allotment for the station has been made by the Bureau of Mines in its appropriation for the year. The movement for a west Kentucky station at Madisonville, recently was started in the Senate by Senator Fred M. Sackett. Western Kentucky will be satisfied to get a truck, which some think will be better than a car.

Mine Has First Fatality in 18 Years.—A record of eighteen years without a fatal acident at the Elkhorn Block Coal Co. mine at Ligon, near Prestonburg, was broken on June 28, when John Chaffin, who had been with the company from the time it started the mine, was killed when he came in contact with a live wire.

The Elkhorn-Shelby Creek Coal Co., Esto, recently suffered a fire loss of about $25,000.

MASSACHUSETTS

Hard-Coal Stocks Below Normal.—Stocks of domestic anthracite in the yards of Massachusetts dealers on June 1, according to the Special Commission on the Necessaries of Life, totaled 558,153 net tons, compared with 869,533 tons on the same date a year ago. Deliveries to consumers during

April and May, last, amounted to 766,135 tons against 726,041 tons in the corresponding period of last year. Receipts of hard coal in the first two months of the current coal year totaled 1,324,288 tons, a decrease of 271,286 tons from the total for the corresponding period of 1925.

MINNESOTA

Charges Unfair Practices. — The Western Coal & Coke Co., a Minneapolis concern, has filed suit in the U. S. District Court of Minnesota for $675,000 damages against ten Twin City coal operators as a result of competitive practices extending over a period of seven years. The complaint alleges that members of the association, which was formed in 1914, discriminated against the company by refusing to grant long-time credit terms given other distributors. The plaintiff company also alleges that the defendant association was formed for the purpose of "eliminating price competition between its corporate members" and that each company paid in annually $500. The defendants in the suit are the Berwind Fuel Co.; Pittsburgh Fuel Co. of Wisconsin; Northwestern Fuel Co., C. Reiss Coal Co.; Clarkson Fuel & Dock Co. of St. Paul; Carnegie Dock & Fuel Co.; Northern Coal & Dock Co.; Great Lakes Coal & Dock Co.; Pittsburgh & Ashland Coal & Dock Co.; the Northwest Coal Dock Operators' Association, and the M. A. Hanna Coal Co. of St. Paul.

The Inland and Clarkson docks at Duluth have arranged to handle considerable railroad coal this season, and cargoes are now being moved to them.

The Great Northern R.R. is reported to have renewed its lease of a section of the Carnegie Dock & Fuel Co.'s docks at Superior for storing coal for the use of its transportation department in this territory.

OHIO

Ohio Output Lowest Since 1920.—Ohio mines produced 27,358,987 tons of coal in 1925, according to figures tabulated by the statistical bureau of the state Department of Industrial Relations. This is less than the total of any year since 1920. The largest coal producing county in Ohio in the past year was Belmont, with an output of 9,183,458 tons. Next comes Jefferson County, with 4,840,054 tons; Harrison County, 2,836,495 tons; Athens County, 2,501,693 tons; Perry County, 1,497,624 tons; Guernsey County, 1,097,538 tons, and Tuscarawas County, 1,084,820 tons. Machine mined coal totaled 23,221,984 tons; stripping operations, 2,601,379 tons and pick-mined, 1,535,624 tons.

PENNSYLVANIA

Hard-Coal Road Climbing.—The report of the Lehigh Valley R.R. for May and the first five months of the year reveals a remarkable recovery from the period of slack earnings created by the anthracite strike. Net operating income for May was $1,716,627, against $1,541,540 the previous May, while gross was $7,143,895, against $6,819,071. As a direct result of the anthracite strike, gross for five months of $29,975,208 fell slightly below the figure for the corresponding period of last year, which was $31,517,398, and net operating income of $4,005,522 compares with $5,258,011.

Company Garage for Employees.—The Glen Alden Coal Co. has decided to erect a building to be used as a garage and store house at a cost of $150,000 near its general offices in Scranton. Cars of officials and office employees will be parked in the building during the day and materials also will be stored there. Plans for the structure were recently filed with the city building inspector and work is to be started in the near future.

Pillar Robbing Empties Homes.—Notices have been served by the Lehigh Valley Coal Co. on occupants of company houses at Yorktown, near Hazleton, that they should move elsewhere due to the plans of the company to rob pillars in the workings beneath the buildings. These operations mean general cave-ins are looked for. Yorktown is one of the oldest mining towns in the anthracite field. The occupants of the houses, all employed by the coal company, are to get quarters on the outskirts of the town.

Tear Bombs Disperse Pickets, Says Fagan.—A crowd of union miners and their wives picketing at the Pittsburgh Coal Co. mine near Bellevernon last week was dispersed by coal and iron police using tear gas bombs, according to P. T. Fagan, president of district No. 5, United Mine Workers. There was no violence and no one was hurt, he said. The mine, Mr. Fagan said, had been closed for about a year, when an attempt was made to open it under the 1917 wage scale. Twenty-two men went into the mine to work, he said, the majority of them being imported men.

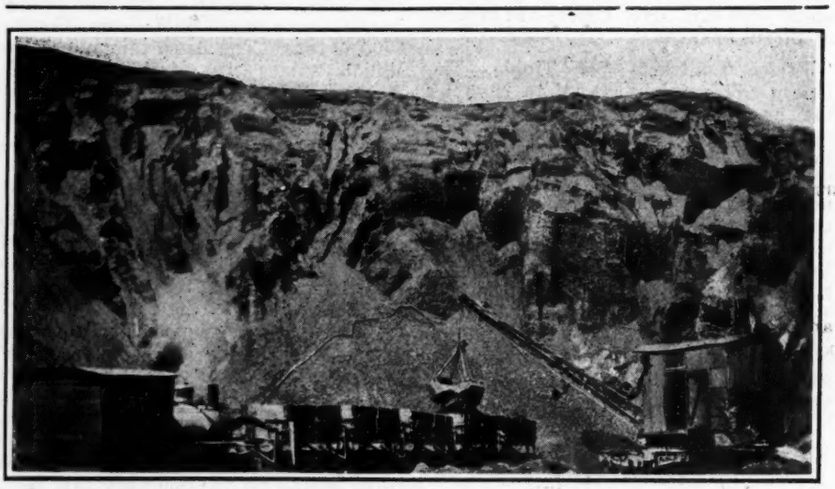
Johnstown to Sell Coal Bed.—Johnstown's City Council has decided to sell a bed of coal underlying Roxbury Park, in the Eighth Ward. Councilmen are contemplating disposing of the "C" seam, the funds derived from the sale to be utilized in development of park projects. It is planned to offer the coal at public sale.

Receivership Deferred.—At a hearing in Huntingdon County Court on June 22 the question of the appointment of a receiver for the Huntingdon & Broad Top Mountain Railroad & Coal Co. was continued until Oct. 4, next. George McDougal, of Philadelphia, seeks to have a receiver appointed. The company asked for the dismissal of the bill, which was refused. The business of the company is, in reality, now in the custody of the court.

President John Brophy of District No. 2, **James Mark**, vice-president, and International Vice-President **Philip Murray**, speaking at DuBois, June 22, voiced the union's unalterable purpose to adhere to the Jacksonville agreement.

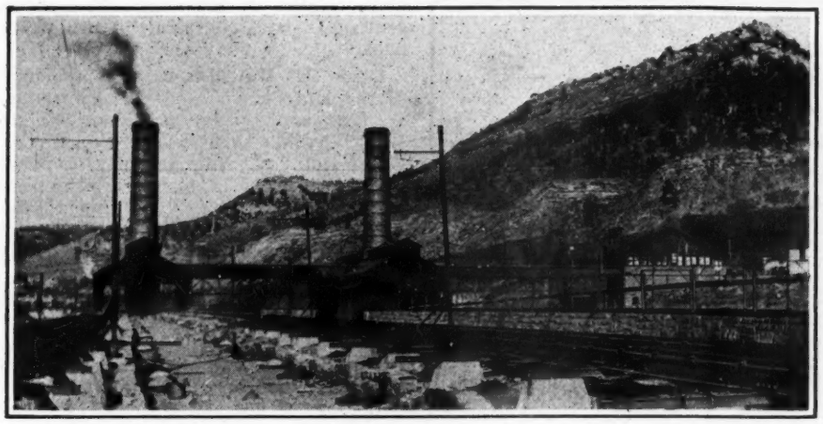
Sonman Operations Close.—The Sonman Shaft Coal Mining Co., at Sonman, Cambria County, operating a shaft and a slope mine and employing 500 men, ceased operations on June 28 for an indefinite period. The shutdown is attributed to inability of the company to come to an agreement with the men over a wage rate that would justify the operation of the mines. The mines are among the largest along the main line of the Pennsylvania R.R., having a capacity of 1,400 to 1,500 tons per day.

Begin $2,000,000 Dam.—Drilling for the foundations for the $2,000,000 dam of the Hudson Coal Co. has begun at Cold Run. The dam will hold 2,000,000,000 gal. of water, which will be used for the operations of several new collieries in that section. The largest of the contemplated collieries will be erected east of Middleport, where prospecting for coal has been in progress for six years. The breast of the new dam will be of solid concrete, 105 ft. high, arch shaped and new in type for the coal regions. The engineers say that $500,000 will be spent this year on



Removing Waste Coal at Dawson, N. M., with a Locomotive Crane

The waste of previous years is the fuel of another and more frugal generation. One of these days, fine coal will be as much valued as the blocky coal that now commands a premium. This will be when the consumer fully awakens to the advantages of stokers and pulverized-coal furnaces. Of all persons the small consumer of coal is perhaps the most backward in seeking efficiency. The operators of the West are keenly alive to the necessity for finding him a suitable furnace for fine coal and for educating him in the use of such equipment.



Boiler and Power House and Coke Ovens of Phelps Dodge Corporation

These are connected with Mines Nos. 1 and 2 and are located at Dawson, N. M. Note the heavy tracks laid on girders supported by substantial pillars.

the work and the balance next summer, when the project will be completed. Hudson Coal Co. officials announced that the new town is to be built on the hill southwest of Middleport and will consist of 100 twin houses. The water from the big dam at Coal Run is to be pumped over the mountain by electric machinery and will furnish water to the town and to the mines.

Brophy After Non-Union Men.—John Brophy, president of District No. 2, United Mine Workers, has started a movement to unionize the non-union fields in central Pensylvania. Headquarters have been opened in Indiana, where organizers will start with the miners employed by the Rochester & Pittsburgh Coal & Iron Co. and allied interests, known as the B. R. & P. coal companies.

VIRGINIA

Secretary Wilson an Operator.—William B. Wilson, former Secretary of Labor and Democratic nominee for U. S. Senator from Pennsylvania, and Daniel Milson, of Allport, Pa., have leased from the Domestic Fuel Corporation, Richmond, the Bingley coal tract at Robious, near Midlothian, in Chesterfield County. It is proposed by the lessees, it is stated, to operate the mines at the rate of 300 tons of coal daily at the start. Production will begin as soon as a power line to the mines is installed. This matter, it is stated, now is in the hands of the Virginia Electric & Power Co.

Amendment to the charter of the Longley Coal Corporation, of Roanoke, increases the maximum authorized capital stock from $100,000 to $150,000 and changes the name to the Fletcher Coal Co. R. A. Fletcher is president and Abram P. Staples is secretary.

UTAH

J. W. Littlejohn has taken over under a new lease commencing July 1 the Utah Fuel Co.'s Clear Creek property, which has been operated by his brother, William Littlejohn. It is stated that the contract runs for one year, but is subject to cancellation by either party on three months' notice.

WEST VIRGINIA

The Federal Coal Co., of Scranton, Pa., has purchased the mine of the Gauley Bi-Products Coal Co. near Vaughan, in Nicholas County. The property was sold at a trustee's sale. The property was purchased under a leasehold, the Federal company owning the land. In the tract are six hundred and fifty acres of splint and gas coal, together with a mine already equipped having a capacity of about 250 tons a day.

Most Accidents in Coal Industry—The annual report of Lee Ott, commissioner of the state workmen's compensation department, recently issued, shows that of 33,620 accidents reported during this year up to May 15, 16,081, or 47.83 per cent, occurred in the coal industry. The next highest hazard was the metal industry, with 6,841 accidents, or 20.35 per cent of the total. Of the accidents in the coal mining industry, 6,010, or 37.37 per cent, were due to haulage accidents. Falling coal and roof and rolling objects caused 4,410 accidents, or 27.42 per cent of the total. Fatalities from June 1, 1925, to May 30 last show that 587 occurred in the coal mines of the state, or 86.32 of the 680 in all industries. Of the 26 permanent total awards, 23 were charged up to the coal industry.

The Katona Coal Co., which operates at East Lynn, in Wayne County, is making further plans for extensive development in the East Lynn section. Offices of the company are maintained at East Lynn and also at Cincinnati. The company has been awarded a contract to deliver 600,000 tons of coal to the Seaboard Air Line over a period of three years.

Fire of unknown origin destroyed ten dwellings and the club house of the Thacker Coal & Coke Co., at Thacker, in the Williamson field, on June 25, causing about $50,000 damage.

The first-aid team of mine 41 of the Bethlehem Mines Corporation, at Barrackville, won first place in the recent first-aid meet conducted in Bethlehem, Pa. Representatives from all divisions of the company were present and competed for honors. The winning team was made up of Kenneth Bartlett, captain; J. W. Welty, patient; and C. W. McNary, Joe Ice, Junior Bartlett and M. J. Mitchell.

WYOMING

Cumberland Mines to Close.—The entire working force and production of the Cumberland mines will be transferred to Rock Springs soon after next winter, according to Eugene McAuliffe, president of the Union Pacific Coal Co. The Cumberland coal deposits are about exhausted and as soon as they have been worked out, they will be shut down and the camp closed.

CANADA

Coke Output Higher in May.—During May coke production in Canada totaled 159,390 tons, as compared with 149,357 tons in the preceding month and 130,068 tons in May of last year. Imports of coke into Canada in May dropped to 66,572 tons, which made the total supply 225,962 tons. Exports were 4,973 tons, and the apparent consumption of coke in Canada for the month was 220,989 tons. Imports for April were 51,146 tons, exports 3,673 tons, and apparent consumption 196,830 tons.

Will Study Coal Deposits.—A thorough survey of the mineral possibilities of the Province of Saskatchewan will be made this summer by the provincial government. A party in charge of C. B. Hastings, mining engineer and geologist, will investigate coal deposits and other mineral resources in Lac La Ronge. The party will follow up the survey made by the provincial ceramist, who found indications of the existence of high-grade coal in the neighborhood of Lac La Ronge. On his recent return from that survey Professor Worcester reported finding outcroppings of coal over an area about 100 miles long, and also discovered oil shales and glass sand in the Lac La Ronge area. Another party will go north to Cold Lake, in company with Professor Worcester.

Cape Breton Mines Busy.—The Cape Breton collieries of the British Empire Steel Corporation have started on what promises to be one of the busiest shipping seasons for years. Colliery No. 6 will not be operated this summer. This mine has been closed since the strike on March 6 of last year, when it was allowed to become flooded. The men have been distributed among the other collieries.

Landing tenders at No. 2 colliery of the British Empire Steel Corporation, Sydney, N. S., who were out on strike have returned to work. A special meeting was held last week, when the new contract submitted by the company was approved. Efforts are now being made by the drivers to execute a new contract with the company.

The One Big Union has been organized among the miners in the Grand Lake bituminous area. The organization is reported as dissatisfied with the settlement made by a commission appointed by the New Brunswick Government.

Among the Coal Men

F. F. Sharpless, formerly secretary of the American Institute of Mining and Metallurgical Engineers, has hung out his shingle as consulting mining engineer with offices at 7 East Forty-second Street, New York City.

Hywel Davies, who for 20 years was president of the Kentucky Coal Operators' Association, is a member of the recently appointed Railroad Board of Mediation. His efforts on behalf of the Kentucky operators at times brought about clashes with the late Milton H. Smith, president of the Louisville & Nashville Ry., who on more than one occasion threatened violence to Davies, but the latter never failed to return to renew an argument that had not been satisfactorily settled. In recent years he has been acting as a conciliator in the U. S. Department of Labor.

F. G. Hatton, president of Hatton, Brown & Co., Inc., Columbus, Ohio, left late in June for an inspection trip at the mine of the Himler Coal Co., Himlerville, Ky., of which he has been receiver for the past eight months. A new type of conveyor for mining and assembling coal at that mine has been installed. Mr. Hatton also will inspect the Hatton-Brown mines at Betsy Layne, Ky.

Frank Brown, manager of the Spring Canyon Welfare Medical Association, with headquarters in Salt Lake City, Utah, who was seriously wounded by a frenzied miner who asserted his compensation claim for an injury had not been properly attended to, is expected to recover. He is in the hospital and is still in a serious condition. His assailant also is expected to recover. A charge of attempting to murder Brown is being drawn up against him.

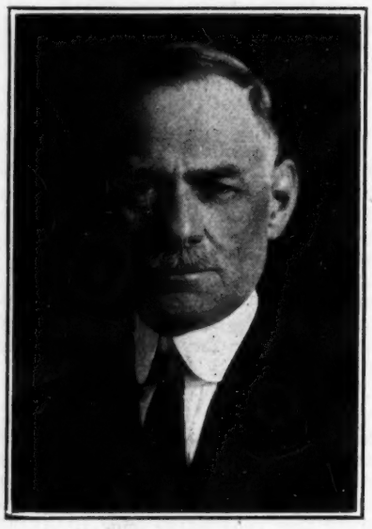
Scott Turner, director of the Bureau of Mines, has returned to Washington after a visit to Michigan region, where he conferred with the copper producers. He finds that there is a general disposition to co-operate with the state and the federal government in research work and special studies of their problems.

Guy H. Sowards, sales manager of the Southwestern Fuel Co., Louisville, Ky., resigned his connection with that organization, effective July 1, to become vice-president in charge of sales of the C. L. Ryley Coal Co., Lexington, Ky., which handles the output of the Happy Coal Co., New Duane Mining Co., Trace Fork Mining Co., No. 4 Superior Coal Co. and the Storm King Coal Co., all operating in the Perry County field of Eastern Kentucky. The five mines, which have a rated capacity of 32 cars a day, are controlled by the Ryley company.

G. Carl Areford, president of the Fayette-Greene Coal Producers' Association and of the Arden Fuel Co., Uniontown, Pa., which operates in northern West Virginia, was re-elected president of the Uniontown Chamber of Commerce at a meeting held at the White Swan hotel in that city on June 23.

J. W. Reed, safety director for the Consolidation Coal Co., has returned to Fairmont, W. Va., after spending a week in the Pennsylvania fields giving instruction to miners in modern safety methods.

Brock Showalter, of the Continental Coal Co., is confined to his home in Fairmont, W. Va., by a serious illness.



Otis Mouser

Otis Mouser, who recently succeeded the late Col. D. B. Wentz as president of the Virginia Coal & Iron Co. and of the Stonega Coke & Coal Co., contemplates but few changes in the business policies of the companies, having been closely associated with Colonel Wentz in shaping the affairs of the Wentz interests.

Erskine Ramsey, of Birmingham, Ala., formerly vice-president and chief engineer of the Pratt Consolidated Coal Co., who has been on a trip North, visited Uniontown, Pa., and Gary, W. Va., last week.

Nathan A. Bowers, Pacific Coast editor of *Engineering News-Record,* has received the degree of Doctor of Philosophy from Stanford University. This is the first time a civil engineer has received a Ph.D. at Stanford. Mr. Bowers joined the staff of *Engineering Record* in 1910, and after two years in the New York office was sent to the Pacific Coast, which territory has since then been his special assignment. His headquarters are at San Francisco.

Captain Percy Tetlow, of Charleston, W. Va., and Columbus, Ohio, president of District No. 17, United Mine Workers, has gone on a visit to Columbus, after which he will sail from New York City July 10 for a tour of the coal fields of Europe. Captain Tetlow will attend the international miners' convention in Cracow, Poland, which convenes during the first week in August. The other delegate from the miners' union is **C. J. Golden,** of Shamokin, Pa., president of District No. 9 in the anthracite field.

Clyde E. Hutchinson, vice-president of the Hutchinson Coal Co., Fairmont, W. Va., and former president of the West Virginia Coal & Coke Co., was in Charleston, W. Va., recently, reports having it that he is considering the purchase of a coal mine in southern West Virginia.

Superintendent Drill, of the Lemont plant of the H. C. Frick Coke Co., Lemont Furnace, Pa., has been placed in supervision of the installation of the new belt line connecting Footedale, Buffington and Filbert mines underground. The job will require the next two years to complete, estimates show. Mr. Drill has been succeeded at Lemont by **Superintendent Quinn,** of the Whitney plant, Westmoreland County.

R. T. Atkins, president of Liberty Coal & Coke Co., Pineville, Ky., recently gave a large number of newspaper men a peep at the fundamentals of coal mining. The party was composed of the entire convention of the Kentucky Press Association. The Louisville & Nashville Ry. supplied a sightseeing train to the mines, where inspection of the plant, production methods, etc., was made by the editors.

Duncan C. Kennedy, of Charleston, W. Va., secretary of the Kanawha Coal Operators' Association, sailed from New York June 26 with his family on a trip to the United Kingdom and the Continent.

Sydney G. Lund has been appointed sales manager for the Buffalo district of the Payne Coal Co., of Wilkes-Barre, Pa., which has several agencies in leading towns in the anthracite-consuming territory. He has been in the coal trade all his business life and was Buffalo agent of Whitney & Kemmerer for several years, till that company closed its office a short time ago.

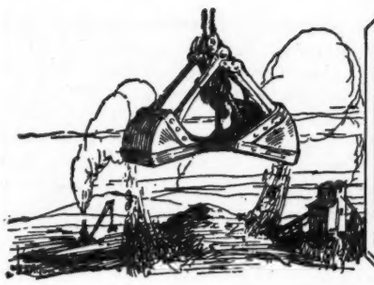
Walter Gordon Merritt, general counsel for the Anthracite Operators' Conference, will sail from New York for Europe on July 8.

Percy Gille, of Charleston, W. Va., was appointed a safety director of the safety department, West Virginia Department of Mines, in the Williamson field, on July 1.

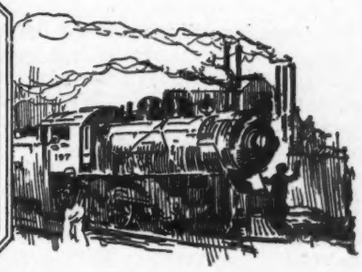
Tom Dew, of Cincinnati, Ohio, formerly connected with the Eastern Coal & Export Co. and the Western Coal Co., of Cincinnati, accepted a position on July 1 as assistant sales manager of the Indian Run Coal Co. in Charleston, W. Va. Mr. Dew succeeds W. D. Vaughan, who becomes field agent of the Eastern Coal & Export Co., of Richmond, Va., as resident field representative.

Obituary

David Marion Parr, at one time a deputy state mine inspector in Kansas, died June 24, at his home at Girard, Kan., of injuries said to have been received March 20, in a rock fall at the Central Coal & Coke Co.'s mine No. 51, near Girard. Mr. Parr was a miner in Kansas twenty years. He was 48 years old.



Production And the Market



Foreign Buying Features Soft-Coal Market; General Tone Dull but Steady

Foreign buying still commands the center of the stage in an otherwise dull but steady bituminous market. As has been the case since this movement began in mid-June, West Virginia high-volatile coals have the first call on the business. During the past week fresh impetus was added to export trading by the lifting of the embargo laid upon C. & O. shipments to Newport News on June 24 to clear up congestion at the piers.

The removal of these restrictions was signalized by an upward swing in pier prices on pools 5, 6 and 7, which went to $4.30@$4.40. This was 15c. better than the preceding week but 20c. under the figures reached before the embargo. Quotations on pools 1 and 2 were slightly weaker. Asking prices on pool coals at other North Atlantic ports were unchanged. Inland quotations on West Virginia high-volatiles also were unaffected by the export demand.

Nevertheless, this foreign movement, which pushed export dumpings at Norfolk over the 1,000,000-ton mark last month and sent Baltimore totals climbing toward 200,000 tons, has had a favorable sentimental reaction on other Eastern coals and has brought a brighter tone to markets where there has been no upward swing in actual prices. It has served, too, to revive the interest of languid Eastern buyers.

Middle Western Markets Sluggish

In the Middle West a sluggish sentiment predominates. Recent advances in domestic prices have not stimulated buying, but screenings are again up. Ohio steam grades suffer from West Virginia and Kentucky competition. There is a better outlook in both the Northwest and the Southwest, but little gain in Colorado or Utah. *Coal Age* Index of spot bituminous prices on July 5 was 158 and the corresponding price was $1.91, as compared with 157 and $1.90 on June 28 and 160 and $1.94 on July 6, 1925.

Bituminous production for the week ended June 26 was estimated at 9,825,000 net tons, as compared with 9,503,000 tons the week preceding. This increase of 322,000 tons probably represents extra buying to cover requirements over the holidays, when output was sharply reduced, as well as the export movement.

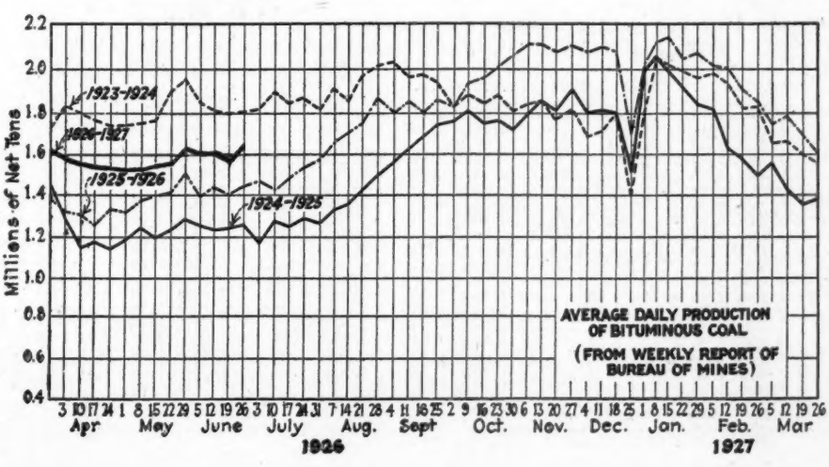
The lake trade also plays an important part in these figures. Dumpings for the week ended July 4 totaled 1,138,364 tons of cargo and 57,194 tons of vessel fuel. This brings the season's total to date to 10,638,607 tons, as compared with 9,921,666 tons in 1925 and 7,153,306 tons in 1924.

Anthracite Outlook Uncertain

The anthracite outlook is uncertain. In some markets household consumers still are in revolt against the failure of the producers to make the usual spring reductions. To what extent that dissatisfaction will be expressed in purchases of other fuels and to what extent merely in delayed buying of hard coal is in the conjectural stage. Opinion is conflicting.

Production was slightly larger the end of June. The aggregate output for the current coal year is about 2,863,500 net tons greater than at this time in 1925. Stove easily leads in demand, while nut is hard to move. In the steam division, rice has become as troublesome as buckwheat.

Connellsville coke output during the week ended June 26 showed its first increase in a month. Prices, too, were firmer. How much of this strength was due to buying in anticipation of curtailed supply over the holidays and how much to an actual rise in current demand remains to be seen.



Estimates of Production

(Net Tons)

	1925	1926
BITUMINOUS		
June 12	8,622,000	9,624,000
June 19 (a)	8,402,000	9,503,000
June 26 (b)	8,662,000	9,825,000
Daily average	1,444,000	1,637,000
Cal. yr. to date (c)	229,656,000	262,356,000
Daily av. to date	1,529,000	1,746,000
ANTHRACITE		
June 12	2,083,000	1,825,000
June 19	2,032,000	1,745,000
June 26	2,087,000	1,800,000
Cal. yr. to date (c)	35,182,000	43,251,000
BEEHIVE COKE		
June 19 (a)	130,000	184,000
June 26 (b)	127,000	187,000
Cal. yr. to date (c)	5,187,000	6,539,000

(a) Revised since last report. (b) Subject to revision. (c) Adjusted to equalize number of days in the two years.

Screenings Stage a Come-Back

Screenings, which hit the toboggan in the Chicago market a fortnight ago, rallied again last week. Western Kentucky fine coal, the weakest of all, advanced 15 to 35c. Illinois and Indiana screenings were 10 to 15c. stronger in price as production slumped off. With further curtailment in output over the holiday, the steam market is expected to retain its firmness. Many operators plan to keep their mines down for a full week.

Illinois and Indiana producers were content to leave the domestic price situation as it was after the late June advance. Eastern shippers are marking time until they can study the reactions of the retail trade to the Western increases. For the time being, these advances have not encouraged heavier buying. Should there be signs of this, however, quotations on West Virginia and Kentucky coals undoubtedly will be raised.

Smokeless shippers to the Chicago market are not happy over the current situation. The anticipated broad demand for their output has not developed. In a number of cases prices on mine-run have been shaded 15c. to prevent accumulations of unsold tonnage. Western demand for anthracite is fair but below that of a year ago. Coke is active.

There was little activity in the Illinois and Indiana mining fields the first week of the month. If anything, the increase in price on the larger sizes swelled the accumulations of "no-bill" lump, egg and No. 1 nut in southern Illinois. There was a fair movement of the smaller sizes and some crushing of mine-run to take care of screenings contracts. Strip pits, with their lower prices, hold the edge on competitive business. Shaft mines in Duquoin and Jackson County had a bad week.

Railroad Orders Save Mt. Olive

Railroad orders were the mainstay of operations in the Mt. Olive area, but these, and scattered steam business, fell far short of furnishing full running time, even for the mines that had not closed down. Depression continued in the Belleville area. The only mines which showed any approach to steady work were the co-operatives and a few loading railroad coal. Midsummer sluggishness controls the local St. Louis market.

Uncertainty as to price policies grips Kentucky. There has been some talk of advances on prepared sizes from the eastern field, but retail distributors are coy. Another drawback to increases is the fact that a number of mines now down plan to start up again just as soon as there are any firm indications of higher prices. In the meantime, most of the mines now in operation seem willing to take on all the business they can get at existing levels.

Barring weakness in western Kentucky screenings at Chicago, industrial demand as a whole is good. Lake shipments from eastern Kentucky are main-

Current Quotations—Spot Prices, Bituminous Coal—Net Tons, F.O.B. Mines

Low-Volatile, Eastern	Market Quoted	July 6 1925	June 21 1926	June 28 1926	July 5 1926†
Smokeless lump	Columbus	$2.85	$3.10	$3.10	$3.00@$3.25
Smokeless mine run	Columbus	1.85	2.10	2.10	2.00@ 2.20
Smokeless screenings	Columbus	1.30	1.25	1.25	1.20@ 1.35
Smokeless lump	Chicago	3.10	3.00	3.00	2.75@ 3.25
Smokeless mine run	Chicago	1.85	1.90	1.90	1.85@ 2.00
Smokeless lump	Cincinnati	2.85	3.00	3.00	3.00
Smokeless mine run	Cincinnati	1.95	2.00	2.00	2.00
Smokeless screenings	Cincinnati	1.30	1.30	1.30	1.25@ 1.35
*Smokeless mine run	Boston	4.20	4.40	4.40	4.35@ 4.50
Clearfield mine run	Boston	1.80	1.80	1.80	1.65@ 2.00
Cambria mine run	Boston	2.05	2.10	2.10	2.00@ 2.25
Somerset mine run	Boston	1.90	1.90	1.90	**1.80@ 2.10**
Pool 1 (Navy Standard)	New York	2.55	2.60	2.60	2.50@ 2.75
Pool 1 (Navy Standard)	Philadelphia	2.60	2.65	2.65	2.50@ 2.60
Pool 1 (Navy Standard)	Baltimore	1.85	2.10	2.10	2.05@ 2.15
Pool 9 (Super. Low Vol.)	New York	2.00	2.10	2.10	2.00@ 2.25
Pool 9 (Super. Low Vol.)	Philadelphia	2.00	2.10	2.10	2.00@ 2.25
Pool 9 (Super. Low Vol.)	Baltimore	1.75	1.85	1.80	1.75@ 1.85
Pool 10 (H.Gr.Low Vol.)	New York	1.85	1.85	1.85	1.75@ 2.00
Pool 10 (H.Gr.Low Vol.)	Philadelphia	1.70	1.85	1.85	1.75@ 2.00
Pool 10 (H.Gr.Low Vol.)	Baltimore	1.60	1.75	1.65	1.60@ 1.70
Pool 11 (Low Vol.)	New York	1.60	1.70	1.70	1.60@ 1.80
Pool 11 (Low Vol.)	Philadelphia	1.55	1.55	1.55	1.45@ 1.70
Pool 11 (Low Vol.)	Baltimore	1.40	1.60	1.60	1.60@ 1.65
High-Volatile, Eastern					
Pool 54-64 (Gas and St.)	New York	1.50	1.40	1.40	1.30@ 1.50
Pool 54-64 (Gas and St.)	Philadelphia	1.50	1.45	1.45	1.35@ 1.55
Pool 54-64 (Gas and St.)	Baltimore	1.35	1.45	1.45	1.45@ 1.50
Pittsburgh sc'd gas	Pittsburgh	2.40	2.25	2.25	2.20@ 2.30
Pittsburgh gas mine run	Pittsburgh	2.15	2.00	2.00	1.90@ 2.10
Pittsburgh mine run (St.)	Pittsburgh	1.95	1.75	1.75	1.60@ 1.90
Pittsburgh slack (Gas)	Pittsburgh	1.50	1.25	1.25	1.20@ 1.30
Kanawha lump	Columbus	1.85	2.05	2.05	1.85@ 2.25
Kanawha mine run	Columbus	1.40	1.55	1.55	*1.40@ 1.70*
Kanawha screenings	Columbus	1.15	1.05	1.05	**.95@ 1.20**
W. Va. lump	Cincinnati	2.25	2.25	2.25	2.00@ 2.50
W. Va. gas mine run	Cincinnati	1.55	1.60	1.60	1.50@ 1.75
W. Va. steam mine run	Cincinnati	1.40	1.40	1.40	*1.30@ 1.50*
W. Va. screenings	Cincinnati	1.15	1.10	1.10	**1.00@ 1.50**
Hocking lump	Columbus	2.15	2.35	2.35	2.25@ 2.50
Hocking mine run	Columbus	1.50	1.55	1.55	1.40@ 1.70
Hocking screenings	Columbus	1.30	1.10	1.10	1.00@ 1.20
Pitts. No. 8 lump	Cleveland	2.20	2.15	2.15	1.80@ 2.50
Pitts. No. 8 mine run	Cleveland	1.80	1.75	1.75	*1.70@ 1.75*
Pitts. No. 8 screenings	Cleveland	1.40	1.25	1.10	*1.05@ 1.10*

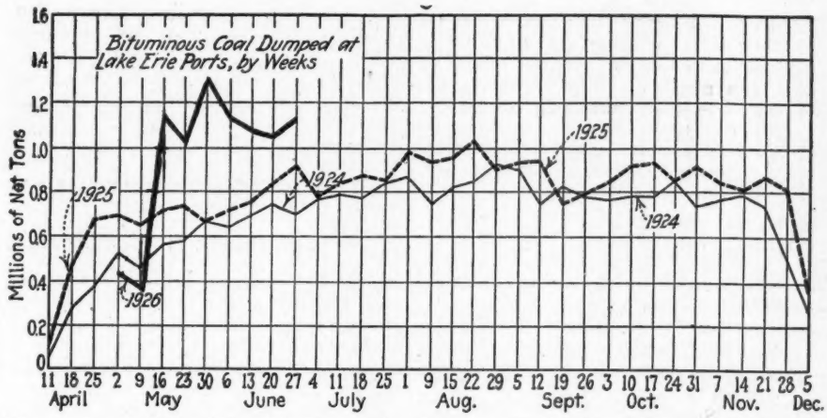
Midwest	Market Quoted	July 6 1925	June 21 1926	June 28 1926	July 5 1926†
Franklin, Ill. lump	Chicago	$2.60	$2.60	$2.75	$2.75
Franklin, Ill. mine run	Chicago	2.35	2.25	2.25	**2.25@ 2.50**
Franklin, Ill. screenings	Chicago	2.00	1.80	1.70	**1.65@ 2.00**
Central, Ill. lump	Chicago	2.35	2.25	2.40	2.35@ 2.50
Central, Ill. mine run	Chicago	2.10	2.05	2.05	2.00@ 2.15
Central, Ill. screenings	Chicago	1.75	1.55	1.45	**1.40@ 1.60**
Ind. 4th Vein lump	Chicago	2.60	2.40	2.40	2.25@ 2.60
Ind. 4th Vein mine run	Chicago	2.35	2.15	2.15	2.10@ 2.25
Ind. 4th Vein screenings	Chicago	1.80	1.85	1.60	**1.65@ 1.85**
Ind. 5th Vein lump	Cnicago	2.25	2.15	2.15	2.00@ 2.35
Ind. 5th Vein mine run	Chicago	1.95	1.95	1.95	1.85@ 2.10
Ind. 5th Vein screenings	Cnicago	1.50	1.45	1.35	**1.40@ 1.60**
Mt. Olive lump	St. Louis	2.50	2.35	2.35	2.25@ 2.50
Mt. Olive mine run	St. Louis	2.25	2.15	2.15	2.15
Mt. Olive screenings	St. Louis	1.75	1.55	1.55	1.50@ 1.60
Standard lump	St. Louis	2.25	2.25	2.25	2.25
Standard mine run	St. Louis	1.80	1.80	1.80	1.75@ 1.85
Standard screenings	St. Louis	1.50	1.35	1.35	1.25@ 1.50
West Ky. block	Louisville	1.35	1.80	1.80	*1.40@ 2.00*
West Ky. mine run	Louisville	1.10	1.25	1.25	*.90@ 1.40*
West Ky. screenings	Louisville	1.10	1.05	1.05	*.90@ 1.10*
West Ky. block	Chicago	2.00	1.75	1.75	1.65@ 1.85
West Ky. mine run	Chicago	1.35	1.15	.95	**1.00@ 1.35**
South and Southwest					
Big Seam lump	Birmingham	2.00	2.30	2.30	**2.20@ 2.70**
Big Seam mine run	Birmingham	1.75	1.85	1.85	1.75@ 2.00
Big Seam (washed)	Birmingham	1.85	2.10	2.00	1.75@ 2.25
S. E. Ky. block	Chicago	2.45	2.40	2.40	2.10@ 2.75
S. E. Ky. mine run	Chicago	1.70	1.65	1.55	1.40@ 1.75
S. E. Ky. block	Louisville	2.10	2.05	2.15	**1.85@ 2.50**
S. E. Ky. mine run	Louisville	1.55	1.50	1.50	**1.30@ 1.75**
S. E. Ky. screenings	Louisville	1.10	1.05	1.05	1.00@ 1.15
S. E. Ky. block	Cincinnati	2.25	2.15	2.15	2.00@ 2.30
S. E. Ky. mine run	Cincinnati	1.55	1.50	1.50	1.25@ 1.75
S. E. Ky. screenings	Cincinnati	1.15	1.10	1.10	1.00@ 1.25
Kansas lump	Kansas City	4.00	4.00	4.00	4.00
Kansas mine run	Kansas City	3.00	3.00	3.00	3.00
Kansas screenings	Kansas City	2.50	2.40	2.40	2.35@ 2.50

* Gross tons, f.o.b. vessel, Hampton Roads.
† Advances over previous week shown in **heavy type**; declines in *italics*.

Current Quotations—Spot Prices, Anthracite—Gross Tons, F.O.B. Mines

	Market Quoted	Freight Rates	July 6, 1925 Independent	July 6, 1925 Company	June 28, 1926 Independent	June 28, 1926 Company	July 5, 1926† Independent	July 5, 1926† Company
Broken	New York	$2.34	.....	$8.15@$8.80	.....	$8.25@$9.25	.....	$8.25@$9.25
Broken	Philadelphia	2.39	.....	8.70	$9.25	8.50@ 9.15	$9.25	8.50@ 9.15
Egg	New York	2.34	$8.50@$8.75	8.55@ 8.80	8.40@ 8.75	8.75@ 9.25	8.40@ 8.75	8.75@ 9.25
Egg	Philadelphia	2.39	8.80@ 9.40	8.60@ 8.80	9.00@ 9.85	9.00@ 9.15	9.00@ 9.85	9.00@ 9.15
Egg	Chicago*	5.06	7.86@ 8.50	7.54@ 8.28	8.48	8.13	8.48	8.13
Stove	New York	2.34	8.75@ 9.25	9.05@ 9.30	9.00@ 9.60	9.25@ 9.50	9.00@ 9.60	9.25@ 9.50
Stove	Philadelphia	2.39	9.40@ 9.75	9.05@ 9.20	9.15@10.30	9.35@ 9.50	9.15@10.30	9.35@ 9.50
Stove	Chicago*	5.06	8.22@ 8.70	8.02@ 8.20	8.84	8.33@ 8.58	8.84	8.33@ 8.58
Chestnut	New York	2.34	8.25@ 8.50	8.55@ 8.80	8.00@ 8.75	8.75@ 9.15	**8.25@ 8.75**	8.75@ 9.15
Chestnut	Philadelphia	2.39	8.80@ 9.65	8.70@ 8.80	8.75@10.05	9.00@ 9.15	8.75@10.05	9.00@ 9.15
Chestnut	Chicago*	5.06	8.14@ 8.35	7.79@ 8.10	8.71	8.38@ 8.53	8.71	8.38@ 8.53
Pea	New York	2.22	4.75@ 5.50	5.00@ 5.80	6.00@ 6.50	6.00@ 6.25	6.00@ 6.50	6.00@ 6.25
Pea	Philadelphia	2.14	5.50@ 5.75	5.00@ 5.40	6.25@ 6.75	6.00@ 6.35	6.25@ 6.75	6.00@ 6.35
Pea	Chicago*	4.79	4.91@ 5.36	4.69@ 5.00	6.03	5.65@ 5.80	6.03	5.65@ 5.80
Buckwheat No. 1	New York	2.22	2.00@ 2.40	2.50	1.50@ 2.50	3.00@ 3.50	1.50@ 2.50	3.00@ 3.50
Buckwheat No. 1	Philadelphia	2.14	2.15@ 2.75	2.50	2.15@ 2.50	2.25@ 2.75	2.15@ 2.50	2.25@ 2.75
Rice	New York	2.22	1.75@ 2.00	2.00	1.25@ 1.85	2.00@ 2.25	1.25@ 1.85	2.00@ 2.25
Rice	Philadelphia	2.14	1.85@ 2.00	2.00	1.65@ 2.00	1.75@ 2.25	1.65@ 2.00	1.75@ 2.25
Barley	New York	2.22	1.35@ 1.50	1.50	1.00@ 1.40	1.50@ 1.75	**1.10@ 1.35**	1.50@ 1.75
Barley	Philadelphia	2.14	1.40@ 1.50	1.50	1.50@ 1.75	1.50@ 1.75	1.50@ 1.75	1.50@ 1.75
Birdseye	New York	2.22	1.50@ 1.65	1.60	1.20@ 1.60	2.00	1.20@ 1.60	2.00

* Net tons, f.o.b. mines. † Advances over previous week shown in **heavy type**; declines in *italics*.



tained in substantial volume. The general range on 4-in. eastern Kentucky block is $2@$2.25, with some coal offered as low as $1.85 and some held as high as $2.50. Mine-run is $1.30@$1.75; slack, $1 @$1.15. Western Kentucky 6-in. block is $1.40@$1.75, with some premium grades up to $2. Lump egg and nut are $1.25@$1.65; screenings, 90c.@$1.10; mine-run, 90c.@$1.50, with little offered under $1.15 and little sold of $1.35.

Slight Improvement in Northwest

Dock operators at the Head of the Lakes see a faint improvement in the situation in the Northwest. Industrial buying has expanded and more steam consumers are asking for bids. The stronger market in the East has been reflected in firmer prices on the docks. Splint screened lump now is $4.75@$5.50; stove, $4.65@$5.25; dock-run $4.50@$5; screenings, $3.75@$4. Hocking lump is $4.75@$5.25; stove, $4.65@$5; dock-run, $4.50@$5; screenings, $3.75@$4. Pocahontas lump and egg are $7; stove, $6.75; mine-run, $5.25; slack, $4.25.

It is becoming increasingly evident that many consumers who were compelled to use smokeless in place of anthracite last year do not intend to return to hard coal. Consumption of domestic coke also is expected to set a new record. There is a heavy run of coal from the lower ports. It is estimated that the docks will be able to distribute 10,000,000 tons of bituminous and 850,000 tons of anthracite this season.

Buying at the Twin Cities is on a restricted basis and little expansion is looked for until the crops begin to move. At Milwaukee, both the docks and the retail distributors report an improvement in demand and hope for still heavier buying after the holiday period. Prices are unchanged.

Southwest in Better Position

On the whole, the situation in the Southwest is better. Threshers are buying Kansas coal steadily and the mines report only a small surplus of unbilled domestic sizes. Shaft-mine screenings are scarce, but crushed shovel mine-run is taking care of any deficit. The summer storage movement of Arkansas semi-anthracite is in full swing. Schools are buying freely and there has been a broadening in demand from the householders.

Colorado has been less successful in its efforts to encourage summer buying, but operators are building hopes on developments later in the month. In line with spring announcements, domestic prices were increased 25c. on July 1. Walsenburg and Canon City lump now is $5; nut, $4.75; chestnut and pea, $3; Trinidad lump and nut, $3.05; fancy chestnut, $3; Crested Butte bituminous lump, $5; nut, $4.75; Crested Butte anthracite, $8@$8.50. Slack ranges from 60c. to $1.40. Kemmerer-Rock Springs lump and nut are $3.25; steam coal, 80c.@$1.10. Steam demand is fairly steady.

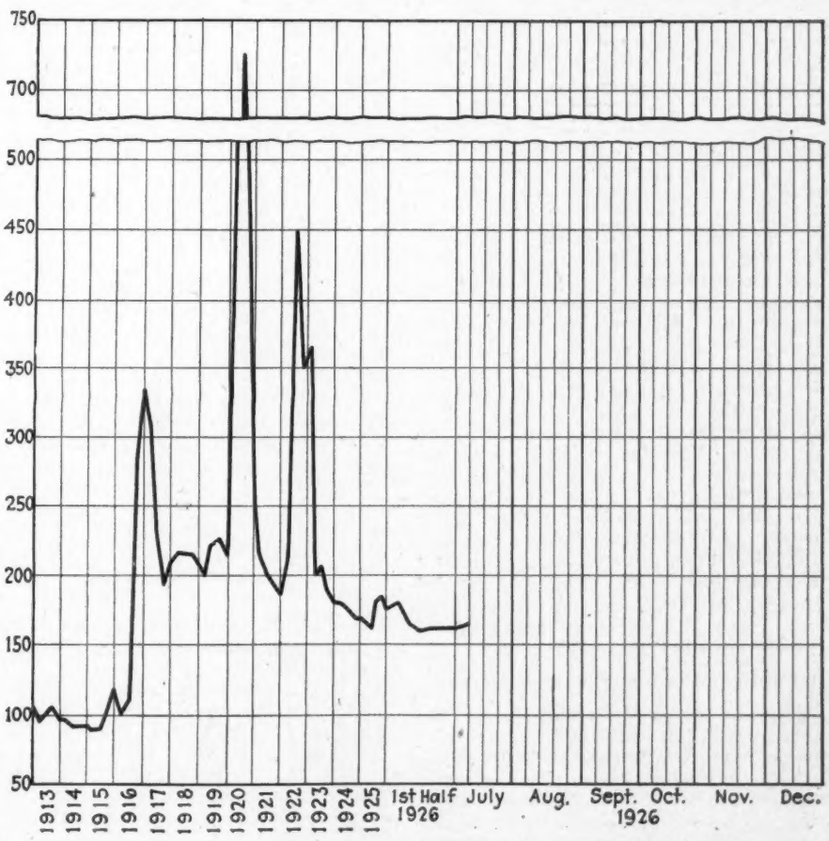
In Utah the fight between the companies that slashed lump prices for summer storage and the C. O. D. retailers who promise to make no advance in the winter goes merrily on. The scarcity in slack, which was back of the reductions on lump, has been relieved, but the market for the larger coal has not been strong enough to cause any overproduction of slack, so there is little likelihood of an early advance in lump quotations. Running time for the state is not much over three days a week.

Tidewater Still Rules Cincinnati

The tidewater situation still is the controlling factor in the Cincinnati market as it furnishes a safe outlet for surplus production from the West Virginia mines. Eastern movement has checked a slump in smokeless and brought lump back to a $3 basis. There has been a moderate improvement in demand for 4-in. lump and block from the high-volatile districts and a sharp improvement in prices on slack. The latter, however, probably is temporary.

As forecast last week, the standard Pocahontas shippers are asking $3 for lump for July deliveries, $2.50 for raw stove and $3 for washed, $2.25 for nut and $2 for mine-run. Slack wobbles; the nominal range is $1.25@$1.35. River movement of coal is slowing down somewhat because of the lower water stages.

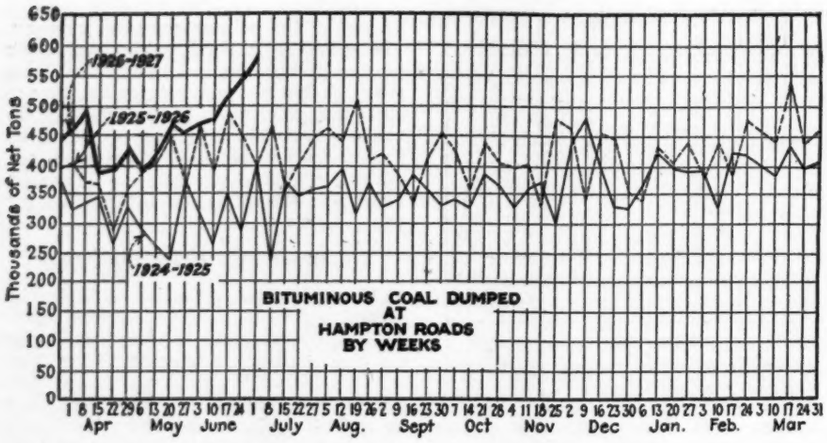
During the week ended last Saturday 14,216 coal loads were interchanged



Coal Age Index of Spot Prices of Bituminous Coal F.O.B. Mines

	1926				1925	1924
	July 5	June 28	June 21	June 14	July 6	July 7
Index	158	157	157	156	160	164
Weighted average price	$1.91	$1.90	$1.90	$1.89	$1.94	$1.99

This diagram shows the relative, not the actual, prices on fourteen coals, representative of nearly 90 per cent of the bituminous output of the United States, weighted first with respect to the proportions each of slack, prepared and run-of-mine normally shipped, and second, with respect to the tonnage of each normally produced. The average thus obtained was compared with the average for the twelve months ended June, 1914, as 100, after the manner adopted in the report on "Prices of Coal and Coke: 1913-1918," published by the Geological Survey and the War Industries Board.


1926-1927
1925-1926
1924-1925
BITUMINOUS COAL DUMPED AT HAMPTON ROADS BY WEEKS
Thousands of Net Tons
Apr May June July Aug. Sept Oct Nov Dec Jan. Feb. Mar

through the Cincinnati gateways. Compared to the preceding week this was an increase of only 17 loads; compared to the corresponding week in 1925, however, there was a gain of 1,583 cars. The interchange included 3,899 cars destined to the lakes. The lake figures showed a falling off of 359 cars from the total for the preceding week. There was an increase in the movement of empties to the mines.

Central Ohio Domestic Demand Firm

The better demand for domestic sizes in the Columbus market has shown no recession. Ohio operators, however, are benefiting little because most orders are placed with West Virginia and Kentucky shippers. Steam business is dull and screenings again are easier, although nominal quotations are unchanged. There is, however, practically no distress coal to upset the market. Southern Ohio production hovers between 15 and 18 per cent of capacity.

The sinking spell which has overtaken general inquiry and demand for fuel in the Cleveland market is unchecked. Mine-run and slack are weaker and further breaks in quotations on the latter appear certain because of light industrial demand and the pressure of surplus coal from shippers with lake contracts.

The Pittsburgh district still is living on hopes. These are bright. Prospects for consumption are good and operators expect that some of the larger plants will begin to store coal before many weeks have passed. Much of this optimism is based upon the better outlook in steel, which now is being produced at a rate 15 to 20 per cent above that of a year ago. Little retail buying is expected until late in August.

Captive Mines Swell Union Output

Most of the strictly commercial coal produced in the district is coming from mines operating on the November, 1917, scale. The greater part of the captive tonnage, however, is being mined under the terms of the Jacksonville agreement. The most important exception is the tonnage produced by the Bethlehem interests. It also is reported that another large steel company has been making heavy purchases in non-union Connellsville.

Central Pennsylvania is wearing a happier aspect as loadings slowly rise. During the week ended June 26 the total was 12,980 cars, as compared with 12,731 cars the preceding week. Complaint is made, however, that the prices realized are unattractive. Current quotations are: Pool 1, $2.30@$2.60; pools 9 and 71, $2@$2.30; pool 10, $1.75@$2.10; pools 11 and 18, $1.40@$1.80.

Slack on the Buffalo bituminous market is weaker, with some sales as low as $1. Fairmont lump is $1.50@$1.65; mine-run, $1.30@$1.45; slack, $1.10@$1.25; Pittsburgh and No. 8 steam lump, $1.65@$1.85; slack, $1.20@$1.30; Allegheny Valley mine-run, $1.50@$1.75; Westmoreland lump, $2.50; slack, $1.50. Low-volatile lump is $2.75@$3.20; mine-run, $2@$2.50; slack, $1.50@$1.75. The top lump price is on Maryland smokeless.

Midsummer Dullness in New England

The market for steam coals in New England suggests midsummer dullness. The export trade at the Southern piers is centered upon high-volatile coals, for which there is only a limited demand in the Northeast. Few consumers seem to be looking to the future. Prices on Navy Standard at Hampton Roads hang at $4.35@$4.50. Second-grade coals sell down to $4.10. Mixtures of slack and mine-run are favored by some buyers because of the lower prices quoted.

Navy Standard on cars at Boston appears to be pegged at $5.35, but there is an occasional sale at $5.25. Retail trade in this coal, which sells at $8 delivered, is slow—so slow, in fact, that some deliveries have been made at $7. All-rail Pennsylvania steam coals find little demand in the New England market at the present time.

Bituminous consumers buying in the New York market are showing more interest. Inquiries have increased and a busy late August and September are predicted. Railroads are in the market for more coal. Some of the larger industrial plants are quietly enlarging their stocks. Strictly local buying, however, has not expanded. Shipments to the piers have been comparatively light. Prices are steady.

No Improvement at Philadelphia

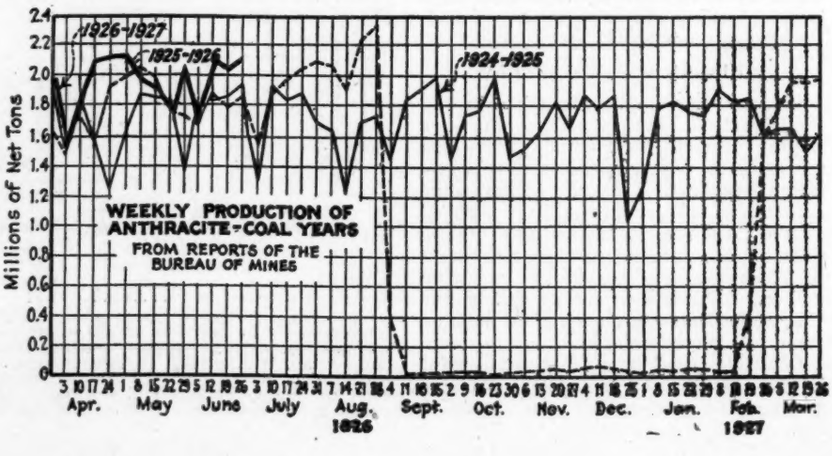
The Philadelphia bituminous market still lacks snap. The export demand, which has quickened interest elsewhere along the Atlantic seaboard, leaves no impress on Quakertown. There is little storage buying, although much is hoped for in that direction. The railroads continue to disappoint shippers who bank upon heavier buying for locomotive fuel.

For the time being, export movement has overshadowed the domestic trade in the Baltimore market. June shipments to foreign consumers had reached 178,425 tons up to June 28. Bunker business also is more active. Interest in the domestic situation is centered upon the rate adjustments now before the Interstate Commerce Commission at Atlantic City. Representatives of the Northern fields see a gloomy time ahead if the Southern districts are successful.

The Birmingham market is marking time. Buying generally is curtailed in both the steam and the domestic divisions. Producers seeking spot orders are hard pressed to find customers. Domestic prices, nevertheless, were advanced on July 1. Big Seam lump went to $2.20@$2.70; Carbon Hill, $2.95; Cahaba, $4.10@$4.60; Black Creek, $4.10@$4.35; Corona, $3.20; Montevallo-Dogwood, $5.10; Montevallo-Straven, $4.85; Montevallo-Aldrich, $5.35. Foundry coke consumers are well covered at $5.50, with spot at $6. There is a fairly good demand for egg at $4.50@$5 and nut at $3.25@$3.50.

Anthracite Holds Place

Despite complaints of dullness, the New York anthracite market is fairly active. Retailers will take egg and nut if assured they will be given some stove. Nut is the weakest domestic size. On the whole, egg moves easily and pea is in fair demand. Stove is the leader. Consumer buying probably compares favorably with other years. Curtailment of production at the mines has helped the general situation. On



Car Loadings and Supply

	Cars Loaded — All Cars	Coal Cars
Week ended June 19, 1926.....	1,043,720	175,079
Preceding week.....	1,060,214	177,477
Week ended June 20, 1925.....	982,600	153,663

	Surplus Cars — All Cars	Coal Cars	Car Shortages — All Cars	Coal Cars
June 23, 1926.	270,162	76,594	.....	.....
June 15, 1926.	268,778	76,071	.....	.....
June 22, 1925.	308,825	111,820	.....	.....

the steam side, rice is causing the most trouble. Buckwheat, too, is weak. Barley is in good demand.

Domestic demand in the Philadelphia market is quiet. Retail distributors do not wish to increase their stocks of hard coal and consumers are not buying in normal volume. Stove continues to have the preference in buying. Straight lots of independent pea are weak. Steam sizes drag. Independents resort to concessions to move tonnage and the larger companies are dumping coal into storage. Barley is the strongest of the junior sizes, but its strength is nothing to boast of.

Neither the general public nor the retailers in Baltimore are taking much open interest in the hard-coal situation at the present time. Orders are light. In Buffalo speculation is still rife over the question of how much business the coke and low-volatile factors in the trade will retain when winter comes. Immediate deliveries are small, but this restriction applies equally strong to anthracite. Lake shipments for the week ended July 1 totaled 111,500 net tons. Clearances were as follows: Duluth-Superior, 75,800 tons; Milwaukee, 22,900; Green Bay, 6,800; Sheboygan, 6,000 tons.

Stronger Tone to Coke

After months of weakness, the spot market in Connellsville coke has swung in the other direction. A fortnight ago, ovens were ready to dispose of odd lots of furnace coke at $2.60: today small lots will command $2.85 and larger shipments $2.75. Standard spot foundry coke is strong at $4@$4.50 and there is little tonnage offering. The market was helped by somewhat heavier buying by furnaces to carry them over the holidays.

Operators feel that they have production adjusted to consumption. The output for the week ended June 26, according to the Connellsville *Courier*, was 139,910 tons. Furnace-oven production in the Connellsville and Lower Connellsville region was 74,900 tons, an increase of 900 tons over the preceding week. Merchant-oven output was 65,010 tons, an increase of 2,280 tons.

Allow Reconsignment at Detroit.—Following the decision of the Interstate Commerce Commission in I & S 2619 the Michigan Central and Pere Marquette railroads have published tariffs effective July 21, 1926, providing for a free reconsignment of anthracite at Detroit, when destined to Detroit or beyond.

The Delaware, Lackawanna & Western R.R. has placed an order for 400 70-ton all-steel coal cars with the American Car & Foundry Co.

Daily Coke Output in May Same as in April

Total byproduct coke output in May, according to the Bureau of Mines, was 3,722,000 net tons and that for April was 3,602,000 tons. The apparent increase of 120,000 tons, or 3 per cent, is due to the fact that the month was longer by one day, for the average daily production was exactly the same in the two months—120,000 tons. The plants operated at about 88 per cent of capacity. Of the 81 plants now in existence, however, only 74 were active in May, one less than in April.

Beehive coke production continues to decline, dropping from an estimated tonnage of 981,000 in April to 884,000 in May—a decrease of 97,000 net tons, or nearly 10 per cent.

The output of all coke was 4,606,000 net tons, the byproduct plants producing 81 per cent and the beehive ovens 19 per cent.

Output of Byproduct and Beehive Coke in the United States by Months (a)

(In Thousands of Net Tons)

	Byproduct Coke	Beehive Coke	Total
1923 monthly average.	3,133	1,615	4,748
1924 monthly average.	2,833	806	3,639
1925 monthly average.	3,332	893	4,225
February, 1926.....	3,500	1,402	4,902
March, 1926.....	3,777	1,158	4,935
April, 1926.....	3,602	981	4,583
May, 1926.....	3,722	884	4,606

a Excludes screenings and breeze.

The total amount of coal consumed in byproduct and beehive coke plants in May was 6,742,000 tons, 5,348,000 tons at byproduct plants and 1,394,000 tons at beehive plants, showing the slight total gain of 19,000 net tons.

Estimated Monthly Consumption of Coal in Manufacture of Coke

(In Thousands of Net Tons)

	Consumed in Byproduct Ovens	Consumed in Beehive Ovens	Total Coal Consumed
1923 monthly average.	4,523	2,507	7,030
1924 monthly average.	4,060	1,272	5,332
1925 monthly average.	4,787	1,371	6,158
February, 1926.....	5,029	2,212	7,241
March, 1926.....	5,426	1,826	7,252
April, 1926.....	5,176	1,547	6,723
May, 1926.....	5,348	1,394	6,742

Of the total output of byproduct coke during May, 3,076,000 tons, or 82.6 per cent was made in plants associated with iron furnaces and 646,000 tons, or 17.4 per cent was made at merchant or other plants.

To Rebuild Kentucky Union

Striking miners of two mines near Central City, Ky., launched a move for the reorganization of the United Mine Workers in that district at a meeting July 4. Two hundred and twenty-five coal miners are on strike in that vicinity as a result of a 25 per cent wage reduction at the mines of the Morgan Coal Co. and at the Hayden Coal Co.

Westbound shipments of bituminous coal through the Sault Ste. Marie Canals during June totaled 2,357,682 net tons; anthracite, 253,730 tons.

Coal Consumption by Utilities Still Slipping

Public-utility power plants in the United States consumed 3,142,016 net tons of coal during April, according to the U. S. Geological Survey, compared with 3,501,330 tons in March. Fuel-oil consumption by these plants in April totaled 659,700 barrels, against 715,023 barrels in March.

The average daily production of electricity by public-utility power plants in April was about 7 per cent less than in March and about 5 per cent less than the output for January. In 1925 the April output was about 7 per cent less than the January output. The output for the first four months of this year was about 12 per cent larger than for the same months in 1925, and the output for the first four months of 1925 was about 6 per cent larger than that for the same months in 1924. These comparisons apparently indicate that industrial conditions so far this year are more satisfactory than in each of the two preceding years.

The average daily production of electricity by the use of water power in April again exceeded all previous rates, amounting to 77,200,000 kw.-hr. per day. This rate is about 6 per cent larger than the previous maximum rate in March of this year.

Traffic News

Recommends Rate Parity

Examiner Harriman of the Interstate Commerce Commission has made a report in Docket 17094, *Elk River Coal & Lumber Co. vs. Baltimore & Ohio R.R.*, in which he recommends that the Commission should find that the rates assailed from Dundon, W. Va., are not unreasonable, but that they are, and for the future will be, unduly prejudicial to complainant and unduly preferential of mines of the present Fairmont group to the extent that they exceed, or may exceed, the rates contemporaneously maintained from the latter group to the same destinations.

The complainant alleged that the rates of the Baltimore & Ohio and its connections on bituminous coals from Dundon to points east of Cumberland, Md., in upper Atlantic and New England states and the Province of Quebec, Canada, were unjust and unreasonable and were discriminatory as well as preferential and prejudicial. It also alleged that it is denied through rates and joint rates formerly available over certain Eastern routes.

Some years ago the Dundon group was on the same basis as the Fairmont group. Several years ago they were made 15c. over the Fairmont group. The examiner's recommendations would restore the former relationship.

The New York Public Service Commission has approved, effective July 19, new rates of the New York, Chicago & St. Louis R.R. on coke, coke breeze, coke dust and coke screenings from Buffalo and Buffalo Junction to Jamestown (on Jamestown, Westfield & Northwestern) $1.76 per ton. No joint rate heretofore in effect.

Foreign Market And Export News

German Exporters Play For Long-Term Orders In Continental Markets

Berlin, Germany, June 15.—When the British strike started the Continental coal industry was in a state of depression caused by general business conditions and the British state subsidies. British coal, in spite of higher wages and less efficient methods of production, was able to compete successfully with German coal on German territory within a few hundred miles of the center of German coal production. The business on all the European coal markets was on the downgrade, shutting down of mines was the order of the day and in several fields the position of the industry became extremely precarious.

As soon as the British pits closed, other coal-producing countries began a scramble for business. Germany alone held aloof because the German syndicate was not interested in business of an ephemeral nature. Germany staked her play on a long duration of the British strike, and was shaping her plans accordingly. German producers have adhered strictly to the policy of insisting upon contracts which will insure business long after the British strike is over.

Buyers Fought Syndicate Terms

It was not easy to carry through this policy as the larger foreign consumers, chiefly railway administrations and public utility works, were averse to meeting the conditions imposed by the German coal syndicate. While the general run of consumers was content with hand-to-mouth supplies, utilities dared not risk any stoppage for lack of fuel. When their reserves diminished, with no end of the British strike in sight, they had to proceed to cover.

The German coal trade has been able to close contracts with nearly all Continental railway administrations which prior to the strike procured their coal from Great Britain and with a fair number of gas and electrical works. The benefit derived therefrom to Germany will find expression in a considerable increase in exports during many months to follow. A great deal of business of this nature is still kept in reserve, but every day the British strike lasts exerts pressure upon buyers to come into the market.

No authentic figures on the volume of such business are available as the German coal syndicates are striving to veil the situation as closely as possible. It is estimated, however, that the additional exports in May amounted to over 2,000,000 metric tons, of which 1,500,000 tons have been shipped from Rotterdam. The definite returns, which doubtless will not be forthcoming until the British strike has come to an end, probably will show higher figures.

Soviet Buys Mine Equipment In Germany and France

The first order on the 300,000,000-mark credit granted by the German Government for Soviet purchases in Germany has been concluded by the Donugal coal trust of the Don Basin, according to advices from Kharkov to the Russian Information Bureau. The order is for three large turbines to be used in connection with the extensive electrical installations planned for the Don mines. Deliveries are to be made in five months and the credit terms extend over four years. Other orders for electrical equipment, on long-term credits, have been placed in France, where it is planned to spend $670,000 on such apparatus. Soviet technicians found French prices about a third lower than those that obtained in Germany.

Negotiations are now in progress with a number of firms for general mining machinery for the new mines to be opened in the Don Basin. Equipment will be ordered in the United States, France and Germany.

Silesian Production Decreases

Coal production in the German Upper Silesian coal district amounted to 1,515,192 metric tons in March, and April production, with two less working days, was estimated at 1,175,000 tons. While production decreased, stocks increased from 102,000 to over 130,000 tons. The decrease in sales was due mainly to the reduction in use of house fuel, although the demand for industrial coal decreased considerably.

Foreign sales also decreased. Exports during March and April were about 50,000 tons compared with 85,000 tons in January. Unfavorable sales conditions have caused the Upper Silesian coal syndicate to reduce production of coal and briquets 15 per cent and coke 35 per cent. Notwithstanding a decrease of coke works of 40 to 60 per cent, coke stocks are increasing.

The average daily production during March in the Lower Silesian district amounted to 15,898 tons compared with 17,000 tons in February. Briquet production was about the same as in the preceding month.

Soviet Coal Output Increases 44 per Cent

Coal output in the Soviet Union for the first half of the current Soviet fiscal year to April 1 increased 44.4 per cent over last year, according to a bulletin received by the Russian Information Bureau at Washington. The latest figures are 12,410,000 metric tons compared with 8,596,000 tons a year ago. The advance in production is attributed to increased domestic requirements and the growing exports to Italy and other countries. Production was at 91 per cent of the rate for 1913.

Export Clearances Week Ended July 1

FROM HAMPTON ROADS

	Tons
For United Kingdom:	
Br. Str. Pearlmoor	7,438
Br. Str. Jevington Court	7,359
Ital. Str. Valnoce	6,395
Ital. Str. Valperga	7,491
Br. Str. Eastwood	5,310
Jap. Str. Kofuku Maru	7,617
Br. Str. Tartar Prince	7,209
Span. Str. Upo Mendi	5,747
Br. Str. Papanni	9,586
Br. Str. King Gruffydd	7,437
Jap. Str. Maru	7,638
Span. Str. Bretza Mendi	5,548
Br. Str. Errington Court	7,025
For Ireland:	
Br. Str. Wearpool, for Queenstown	7,984
For Martinique:	
Nor. Str. Tela, for Fort de France	4,407
For Canary Islands:	
Br. Str. Essex Glade, for Teneriffe	6,283
For Argentina:	
Nor. Str. M. S. Titania, for Buenos Aires	6,751
Ger. Str. Argostoli, for Buenos Aires	5,035
For Italy:	
Ital. Str. Ansaldo San Giorgio Quarto, for Genoa	6,829
For Jamaica:	
Amer. Str. Levisa, for Kingston	2,732
For Cuba:	
Ger. Str. August Thyssen, for Havana	3,156
Br. Str. Berwindmoor, for Havana	9,603
Amer. Schr. Lydia McClellan Baxter, for Massopla	1,963
Dan. Str. Fredensborg, for Cienfuegos	2,694
For Brazil:	
Br. Str. Imperial Monarch, for Rio de Janeiro	7,720
Br. Str. Katharine Park, for Bahia and Pernambuco	6,101
For England:	
Nor. Str. Samnanger, for Manchester	6,453
For Scotland:	
Br. Str. Charterhythe, for Glasgow	6,004
For Algeria:	
Amer. Str. Sangamon, for Oran	3,597
For Turkey:	
Grk. Str. Nicolas Zafirakis, for Constantinople	5,390

FROM BALTIMORE

For England:	
Jugo-Slav. Str. Daksa, for Liverpool	6,316
Br. Str. Manchester Commerce, for Manchester	3,540
Belg. Str. Elgasier for Queenstown, for orders for England	7,259
For Argentine:	
Br. Str. Penthaw for Buenos Aires	6,165
For Ireland:	
Br. Str. Kingswood, for Queenstown	6,727
Br. Str. Chatham, for Dublin	5,523
For Uruguay:	
Br. Str. Kildale, for Montevideo	5,574
For Italy:	
Ital. Str. Monte Ossero, for Leghorn	6,514
For Chile:	
Br. Str. Dunstaffnage, for Canaral and Antofagasta (coke)	1,600

Hampton Roads Coal Dumpings*

(In Gross Tons)

	June 24	July 1
N. & W. Piers, Lamberts Pt.: Tons dumped for week	174,821	173,207
Virginian Piers, Sewalls Pt.: Tons dumped for week	104,653	119,003
C. & O. Piers, Newport News: Tons dumped for week	209,276	230,314

* Data on cars on hand, tonnage on hand and tonnage waiting withheld due to shippers' protest.

Pier and Bunker Prices, Gross Tons

PIERS

	June 26	July 3†
Pool 1, New York	$5.40@$5.65	$5.40@$5.65
Pool 9, New York	4.90@ 5.15	4.90@ 5.15
Pool 10, New York	4.60@ 4.85	4.60@ 4.85
Pool 11, New York	4.35@ 4.50	4.35@ 4.50
Pool 9, Philadelphia	4.85@ 5.20	4.85@ 5.20
Pool 10, Philadelphia	4.60@ 4.85	4.60@ 4.85
Pool 11, Philadelphia	4.30@ 4.55	4.30@ 4.55
Pool 1, Hamp. Rds.	4.45@ 4.50	4.45@ 4.50
Pool 2, Hamp. Rds.	4.30@ 4.40	*4.50*
Pool 3, Hamp. Rds.	4.10@ 4.15	**4.15@ 4.25**
Pools 5-6-7, Hamp. Rds.	4.10@ 4.25	**4.30@ 4.40**

BUNKERS

Pool 1, New York	$5.65@$5.90	$5.65@$5.90
Pool 9, New York	5.15@ 5.40	5.15@ 5.40
Pool 10, New York	4.85@ 5.10	4.85@ 5.10
Pool 11, New York	4.60@ 4.75	4.60@ 4.75
Pool 9, Philadelphia	5.10@ 5.35	5.10@ 5.35
Pool 10, Philadelphia	4.90@ 5.10	4.90@ 5.10
Pool 11, Philadelphia	4.55@ 4.85	4.55@ 4.85
Pool 1, Hamp. Rds.	4.50	4.50
Pool 2, Hamp. Rds.	4.40	*4.35*
Pools 5-6-7, Hamp. Rds.	4.25	**4.40**

† Advances over previous week shown in **heavy type**; declines in *italics*.

Coming Meetings

The **West Virginia Mining Institute** will hold its summer meeting July 13 and 14 at Bluefield, W. Va.

Fourth Annual West Virginia First-Aid Contest and First Annual Safety Day, Camden Park, Huntington, Va., Aug. 21. Managing Director, W. H. Forbes, Federal Building, Huntington.

Fifth International First-Aid and Mine-Rescue Contest, San Francisco, Calif., during the first week of September, 1926, under the auspices of the Bureau of Mines, Department of Commerce.

New York State Coal Merchants Association. United States Hotel, Saratoga Springs, N. Y., Sept. 2-4. Executive secretary, G. W. F. Woodside, Dolan Bldg., Albany, N. Y.

Rocky Mountain Coal Mining Institute. Glenwood Springs, Colo., Sept. 9-11. Secretary, Benedict Shubart, Boston Building, Denver, Colo.

American Institute of Mining and Metallurgical Engineers. Oct. 6-9, at Pittsburgh, Pa. Secretary, H. Foster Bain, 29 West 39th St., New York City.

National Safety Council. Oct. 25-29, at Detroit, Mich. Managing director, W. H. Cameron, 108 East Ohio St., Chicago, Ill.

National Industrial Traffic League. Commodore Hotel, New York City, Nov. 17 and 18. Executive secretary, J. W. Beek, Chicago, Ill.

Coal Mining Institute of America. Annual meeting, Chamber of Commerce, Pittsburgh, Pa., Dec. 8, 9 and 10. Secretary, H. D. Mason, Jr., Box 604, Ebensburg, Pa.

Trade Literature

Montgomery Coal Washing & Mfg. Co., Birmingham, Ala., has issued two leaflets on its **Troughing and Return Carriers** and **Belt Conveyor Equipment.** Standard dimensions of plain bearing, roller bearing and ball bearing carriers are given.

The Okonite Co., Paterson, N. J., has issued a series of six folders, 3½x6 in., on its different makes of **Tape, Okocord Portable Cords** and **Cement.**

A special publication, 1643-A, describing the application of **oil circuit-breakers,** has been issued by the Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa. It covers the general application of oil circuit-breakers, the determination of short-circuit current, the precautions necessary, and devotes a number of pages to tables and charts.

American Cable Co., New York City, has issued a handbook of 88 pages, on how to measure wire rope, how to and how not to uncoil or unreel wire rope, how to make an endless splice, how to properly seize rope, how to correctly socket wire rope, how to care for wire rope when in and out of service, etc. The book is well illustrated.

CJB Master Ball Bearings. Ahlberg Bearing Co., Chicago, Ill. Pp. 23, 8½ x 11 in.; illustrated. Operation, construction and lubrication are described, with dimensions and prices.

New Equipment

Bakelite Instrument Parts Facilitate Surveying

As surveying necessitates the constant use of instruments, surveyors employed in either very cold or very warm regions are often inconvenienced by the temperature of the metal parts which must be handled in the use of instruments of the ordinary kind. Various non-metallic materials were at first suggested to take the place of the customary brass adjustment parts on instruments that were to be used in arctic or tropical regions. At this point manufacturers discovered the economic advantages of bakelite resin, made from phenol and formaldehyde. This resin, can be molded by one operation into the shape desired, with threadings, millings, and surface finish complete. Detail hand operations necessary for the manufacture of any other material are thereby eliminated and production costs are reduced. In fact, one firm that manufactures surveying instruments has found that since it has installed molded bakelite thumb nuts, eye pieces, tangent and clamp screw heads, and pinion heads on its instruments it has been able to eliminate from nine to thirty-two manufacturing operations, depending on the individual part produced.

Mining Machine Stands Only Twelve Inches Above Floor

To meet the need for a machine that will cut thin coal the Sullivan Machinery Co. of Chicago, Ill., has placed upon the American market the low model longwall Ironclad, classes CLE and CLA, which are operated electrically and by compressed air respectively. Two or three years ago these machines were introduced into the British market and demonstrated their merit.

Some of the more important dimensions of these machines are as follows: Length of cutter bars, 2½ to 6½ ft., increasing by 6-in. intervals; width of cutter bar, including bits, 20½ in.; total length of machine, 9 ft. 3 in.; width, 30 in.; total height, 12 in.; weight of machine, 4,000 lb.; feed per minute, 15 to 39 in.; horsepower of motor, 30.

The electric machines may be fitted with direct-current motors for either 250 or 500 volts, or with alternating-current motors for either 440-, 500-, or 550-volt current of 40, 50, or 60 cycles. The air-driven machines will operate on pressures ranging from 30 to 70 lb. per sq.in.

These machines are built in three sections which may be separated and thus taken into the mine, there to be reassembled. This renders their transportation easy. Furthermore, in case of trouble with any part of the mechanism this particular portion may be removed as a unit and another section substituted while the old one is being repaired. The top and bottom portions of the machine are exactly alike and it may consequently be turned over and employed as an overcutter as well as an undercutter. Splash lubrication is employed so that reversal of the machine causes no difficulty. All parts are made of steel with the exception of the case and all bearings are of the anti-friction type utilizing either steel balls or rollers.

Many advantages for this new type of machine are claimed by the builders. Among these are the following: Compactness and low weight; the machine is 12 in. high and 600 lb. lighter than its predecessor. Maintenance expense has been reduced because of increased sturdiness of individual parts and of the machine as a whole. Power is nominally equal to that of the earlier machines of this make but is applied more effectively. The power consumption of the electric machines is reduced 20 to 30 per cent.

These machines are completely inclosed and all moving parts are splash-lubricated or actually run in oil. Motors and other revolving parts are all

Cutting in Thin Coal

Light, low and small the new cutter can work where a man cannot crawl. Though it may not be necessary to operate it in 12-in. of headroom, a light and low machine will be a boom in low seams as it gives more room for operation and is easy to load and unload and to move from place to place.

No Higher Than Your Favorite Magazine

This well illustrates the extremely low headroom required for this machine. Although it will operate successfully in high coal it is particularly adapted to use in thin beds or those too thin to be advantageously undercut by machines heretofore available. This machine also is several hundred pounds lighter than its predecessors.

ball-bearing—except in two cases where roller bearings are employed. These machines are built entirely of steel with the exception of the housing and the rotors of the air-driven machine. Both top and bottom are alike and the machine may be converted from an undercutter to an overcutter by simply turning it upside down.

Maximum accessibility is attained. The controllers and feed gearing may be pulled out at the front end of the machine as units and may be handled as such in the lowest coal. The number of working parts and bearings has been materially reduced. A new mounting has been provided for the cutter bar giving increased strength and rigidity.

The new machines have great overall or "backbone" strength; they show no distress when subjected to severe bending strain. The new machines are made up of three independent and complete units or sections which are interchangeable permitting replacement of a given section by a spare while the machine is underground. Both fast and slow cutter chain speeds are available. The feed mechanism gives a speed range of from 15 to 39 in. per minute.

Only three operating handles are provided. The feed-control mechanism contains no interlocking devices. Friction clutches are separate and each is proportioned to its load; all are adjustable for wear from the outside of the machine. Lubrication is simplified. No bevel or worm gears are employed in the feed mechanism. The feed chain does not require threading over either drive or idler sprockets. The entire construction renders the machine easy to handle and operate. Cutting capacity has been fully demonstrated.

Binder Makes Superior Fuel

After much experimentation and research the American Cyanamid Co., of New York, announces that its chemists have perfected a water-insoluble compound suitable for making hard, tough, dustless, clean lump fuel from low-volatile slack, dust and screenings. This binder is smokeless and odorless and has an ignition temperature higher than that of the coal. The briquets made with it are thus hard enough to withstand rough handling and hold their shape in the fire until they are entirely consumed.

It is claimed by the binder manufacturers that tests have demonstrated that low-ash, low-volatile bituminous coal when in this form maintains perfect combustion and requires no more attention on the part of the householder than anthracite, to which it is said to be superior because it gives more heat per unit weight. This fuel neither smothers the fire nor gives off gas as rapidly as does the coal from which it is made. The new binder, its use and the fuel produced are covered by patents.

Industrial Notes

Joseph Harrington recently was elected president of the **Joseph Harrington Co.**, sales subsidiary of the Whiting Corporation, Harvey, Ill. The new company will market the King stoker, designed by Mr. Harrington. Mr. Harrington, a graduate of the Massachusetts Institute of Technology, was associated with the Green Engineering Co. from 1900 to 1912; from 1912 to 1917 he was engaged as a consulting combustion engineer, and during the war he was a member of the U. S. Fuel Administration for Illinois, in charge of the conservation of coal in the industrial power plants of that state. Other officials of the new company are: Vice-presidents, Col. T. S. Hammond (president and treasurer of the Whiting Corporation) and R. M. Bournie; secretary-treasurer, R. A. Pascoe. Mr. Harrington has been retained by the Grindle Fuel Equipment Co., another Whiting subsidiary, to act as an advisory engineer in connection with the application of Grindle pulverized-coal equipment to seam boilers.

The Marion Steam Shovel Co. enters the field with an attractive monthly publication known as "The Ground Hog: A Magazine for Shovel Men." The first issue has articles on "Horsepower," "The Gasoline Electric Shovel" and "Use and Care of Wire Rope."

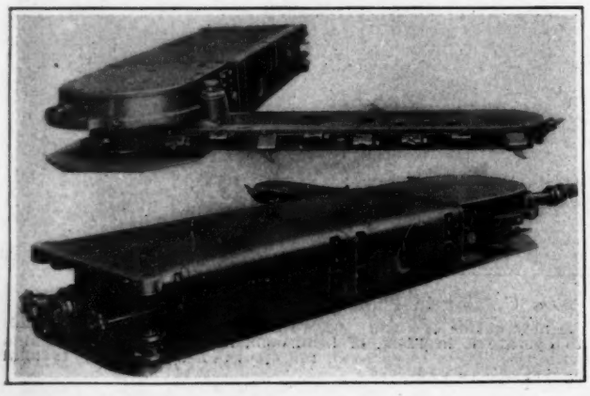
The Fate-Root-Heath Co., Plymouth, Ohio, manufacturer of locomotives, has placed John H. Neafie and George H. Fanning, with offices at 50 Church Street, New York, in charge of the district sales office for New York territory. James A. Ridgway will continue to act as district sales representative for the New England territory.

Daniel J. Carroll has opened an office as consulting coal-mining engineer at 626 Railway Exchange Building, Chicago. During the last 14 years Mr. Carroll has been connected with the engineering and operating departments of the Chicago, Wilmington & Vermilion Coal Co. and its successor, the Chicago, Wilmington & Franklin Coal Co. He was in complete charge of the construction work at Orient No. 1 and New Orient, at West Frankfort, Ill.

The Sullivan Machinery Co., Chicago, Ill., announces the appointment of **Chas. B. Officer**, hitherto engineering assistant to the president, to the position of chief engineer in charge of engineering matters with regard to new machinery or changes in existing designs.

The Power Specialty Co., 111 Boardway, New York City, manufacturer of superheaters, economizers and oil heaters, has purchased the Aero Pulverizer Co., which produces coal pulverizers.

The Van-Derein-Bain Hardware & Supply Co., Lexington, Ky., has been renamed the **Lexington Mine & Mill Supply Co.**



Getting Down to Business

Two views of the air-driven cutting machine. It will operate either side up and the cutter bar may be swung to either side or clamped in a central position.

Association Activities

At the annual meeting of the **Colorado & New Mexico Coal Operators' Association**, held June 16, the following officers were elected for the ensuing years: F. R. Wood, president; H. F. Nash, vice-president; F. O. Sandstrom secretary-treasurer and traffic manager. The directors are W. D. Brennan, Frank Bulkley, A. M. Johnson, A. M. McNeil, S. S. Murphey, H. F. Nash, J. J. Roche, J. van Houten, H. Van Mater, J. F. Welborn and F. R. Wood.